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Founded by Henry E. Sigerist

Editor—Owsei Temkin

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Editor—OWSEI TEMKIN

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COTTON MATHER, THE FIRST SIGNIFICANT FIGURE IN AMERICAN MEDICINE

OTHO T. BEALL, JR.*

Cotton Mather's name is associated with medicine in large degree because of his courageous action in the introduction of inoculation during the Boston smallpox epidemic of 1721. He emerges from this episode as something of an interloper in a field in which he had little right to venture, but yet as one who, by some stroke of luck, proved to be right in his championship of inoculation.[1]

However, an appraisal of Mather's medical writings demonstrates that he possessed a medical background acquired over many years, that on two occasions previous to the inoculation controversy he had acted in matters of public health, that he is apparently the first writer in America to have produced a general treatise on medicine, and that he is evidently the first American to have demonstrated a knowledge of the animalcular theory of

* University of Maryland.—Read at the twenty-fourth annual meeting of the American Association of the History of Medicine, Baltimore, May 3, 1951.

[1] The developments of the controversy itself are well-known and have been competently written of. A good short account appears in Francis R. Packard, *History of Medicine in the United States*, 2 vols. (New York, 1931), I, 76-80; a longer account appears in Reginald H. Fitz, "Zabdiel Boylston, Inoculator, and the epidemic of smallpox in Boston in 1721," *Bulletin of the Johns Hopkins Hospital* (September, 1911), No. 247, XXII, 315-327.

disease. Certainly he is New England's most articulate representative of the tradition of the clerical physician.

Biographical facts about Mather are well-known. Less known is the record of his interest in medicine, which gathered such impetus in the later years of his life that it culminated in a large medical treatise, "The Angel of Bethesda." [2] Very early in his life—Mather was probably ten or eleven years old—he all but abandoned his first choice of a profession, the ministry, for his second choice, medicine. The contemplation of a change in his life's work was forced upon him by an impediment in his speech which caused him to stammer and would, he feared, unless cured, make him unfitted for the calling of a minister.

The period of indecision extended through his undergraduate years at Harvard (from which he was graduated in 1678) to February of 1685/86, when he wrote in his diary that he had given up the idea of becoming a physician.[3] However, Mather studied physic with great application, and while he was at Harvard composed systems of logic and physic in the form of questions and answers.[4] What preparation he made for a medical career must have consisted almost exclusively of reading, this being the accepted method of study. Medical works available to him were to be found in the Mather libraries, the library of Harvard College, and in other private libraries of the Boston area.[5]

Another probable influence on Mather's medical interest was his father's concern for science. There is some evidence that medicine was one of the subjects of investigation of the Boston philosophical society, founded by Increase Mather in 1683. This evidence, in the form of medical case histories which appear to have been collected at this time, suggests that young Mather's interest in medicine was pursued with a double purpose, for the gathering of both practical and philosophical information.

[2] Tentative plans have been made for the publication of outstanding portions of this manuscript by the American Antiquarian Society, the owner, together with an assessment of Mather's knowledge of medicine. The forthcoming study has been made possible in part by a grant from the American Philosophical Society.

[3] Worthington C. Ford, editor, "The Diary of Cotton Mather," Massachusetts Historical Society *Collections*, seventh series (Boston, 1911), Vols. VII and VIII; VII, 115.

[4] Mather's manuscript autobiography, "Paterna," p. 5, owned by the Chicago Historical Society.

[5] Titles of more than three dozen medical works which formed a part of the Mather libraries are known, either from lists or from the books themselves. Here were such works on anatomy as those by Van der Spieghel and Thomas Bartholin; other specialized works by Bartholin, Boyle, William Cole, Joubert, Kircher, and Sydenham; and the collected writings of Hippocrates, Paracelsus, Van Helmont, Fernel, and Willis.

Once Mather had become launched on his clerical career, his interest in medicine remained, subordinate to his chief interest—religion—but yet of an intensity sufficient to permeate both his writings and his actions throughout his life. The position of medicine in his mind as subordinate to religion is clearly illustrated in two of his earlier major works, the "Biblia Americana" and the *Magnalia*. The former work, still in manuscript in six large folio volumes, is a Biblical commentary. Here Mather writes at some length on the history of various Biblical diseases, displays his knowledge of anatomy, and makes an effort to identify certain maladies, especially the illnesses suffered by those cured through Christ's miracles.[6] His *Magnalia* again illustrates the combination of medicine with religious interests, since it is a primary source for the historian of colonial medicine in that it cites many clergyman-physicians of the early period and also takes note of the occurrence and distribution of illness.[7] Included in the work is a collection of medical case histories, designed to illustrate the Mathers' theory of divine providence. Less important references to medicine are also to be found scattered throughout his sermons.

Mather's election to the Royal Society proved to be a powerful stimulus in renewing his earlier scientific interests. Of his unpublished "Curiosa Americana," consisting of almost one hundred letters written to the Royal

[6] His remarks on the history of leprosy (Leviticus.12 and .13) are taken from Dr. Simon Patrick, Bishop of Ely, whose complete paraphrase and commentary on the books of the Bible from Genesis to the Song of Solomon was published in ten volumes from 1695 to 1710. Mather displays his knowledge of anatomy in Genesis.1 and Isaiah.66 and gives an account of the growth of a foetus in Ecclesiastes.11. He identifies Job's disease as the *Ulcus Syriacum* and believes, along with one of the Bartholins, that Job was "Scorbutically Affected" (Job.2). Mather believes that Lazarus died most likely from a malignant or a pestilential fever (John 11). His identification of the disease suffered by those who were cured through Christ's miracles, one of the longest medical passages in the "Biblia Americana," is taken from Gulielmus Ader, *Enarationes de Aegrotis et Morbis in Evangelio*, Tolosae, Bosc, 1620.

[7] *Magnalia Christi Americana; or The Ecclesiastical History of New England* (Hartford, 1855-53), 2 vols. (first published in 1697), mentions as clergyman-physicians the six sons of Charles Chauncey, most of whom were skilled in medicine (I, 475); the Reverend John Fisk, who was first a clergyman, then a physician and later a clergyman (*ibid.*, pp. 477-479); the Reverend John Rogers, who had been a clergyman, then a physician and finally became President of Harvard College (II, 16); the Reverend Leonard Hoar, President of Harvard, who had received a degree of Doctor of Medicine at Cambridge University in England (II, 14); and the Reverend Thomas Thacher, through whom Mather expressed his idealization of the calling of the clergyman-physician (I, 493-494). Mather took note of the Indian pestilence which had raged about a year before the arrival of the first colonists (I, 51), and he wrote in general terms of the illnesses and pestilential diseases which beset the early colonists, noting that some settlements had been prey to certain epidemics while others had been free from them (I, 54, 77, 88).

Society between 1712 and 1724, many are medical documents and many others may be viewed as such, dealing as they do not only with medicine, but with its allied aspects in philosophy, psychology, botany, and zoology.[8] Moreover, medical observations and remarks are prominent throughout many other letters.

Mather's diary records in 1713, the year of his election to the Royal Society, a desire to gather medical knowledge from physicians on botany, rare medical cases, and rare cures; in 1716 he speaks of "getting more Medicines into the Family, to be dispensed unto the Poor."[9] In 1719 he decides to ask his friend, "Mr. J. Wintrop, to furnish me, with some of his Father's and Grandfather's noble Remedies, and I will make myself the Dispenser of them unto the Miserable."[10]

However, Mather's concept of public service in a medical capacity, illustrated in the foregoing quotations, dates from a much earlier period than that of his election to the Royal Society and proves that his well-

[8] Letters which are primarily medical are (1) "Medicines indicated in Dreams," November 22, 1712; (2) a letter on wounds which were considered mortal but failed to prove so, November 24, 1712; (3) "A Surprising Discharge of an Ear of Rye at the Shoulder Blade," a letter of 1713; (4) "An Ear Strangely Molested," a letter of 1713; (5) "A Strange Mischief to the Eyes," a letter of 1716; (6) "The Stone Mistaken," a letter of 1716; (7) "A Serpent Securely Handled," a letter of 1716; (8) "Curiosities of the Smallpox," July 12, 1716; (9) "A Prodigious Worm," October 10, 1717; (10) "*Variolae Triumphatae*," a letter of 1721; (11) "A Further Account of the Method & Success of the Smallpox Inoculated," a letter of 1721; "*Curiosa Variolarum*," a published letter of 1721; (13) "Nishmath-Chajim. The probable seat, & general cure of all diseases," a letter of 1721, published as a pamphlet (1722) entitled *The Angel of Bethesda*, and forming Chapter V of his large, unpublished manuscript of the same name; (14) "The Seventh Son Examined. With a Touch upon the King's Evil," a letter of 1721; (15) "The Case of the Smallpox Inoculated further cleared," a letter of May 21, 1723; (16) "An Unusual Vomit," a letter of September 22, 1724; (17) "A Rare Discharge of Bullets," a letter of September 28, 1724; (18) "Nature at Work with a Needle & some Reports of the *Emplastrum Magneticum*," a letter of September 29, 1724; (19) "Uncommon Dentition," a letter of September 30, 1724. Other letters in which medical remarks and observations are prominent are (1) "Plants of America," Novermber 18, 1712, all those mentioned having medicinal properties; (2) "Antipathies & the Force of Imagination," November 20, 1712; (3) a letter on the rattlesnake, describing a cordial made from the gall of the snake, November 27, 1712; (4) "Long Fasting," a letter of 1713; (5) "The Strength of Imagination," a letter of 1716; (6) "Fagiana," a letter describing an American plant with medicinal properties, July 13, 1716; (7) a letter describing a new species of rattlesnake and giving a remedy for snake bites, June 4, 1723; (8) a series of letters on monstrosities, human and animal, of November 21, 1712, July 2, 1716, July 3, 1716 and also two letters of 1713.

[9] W. C. Ford, editor, *op. cit.*, VIII, 203, 372.

[10] *Ibid.*, pp. 590-591. Mather's correspondent was John Winthrop of New London, Connecticut, later a member of the Royal Society.

known part in the inoculation controversy of 1721 was by no means that of a mere enthusiast. In a letter to the Royal Society, dated July 12, 1716, he writes of his action in a public capacity during the smallpox epidemic of 1702 in Boston. Being full of anxiety about the miseries which were about to befall the town, he read in the *Philosophical Transactions* of Sydenham's success in managing the disease. " I presently consulted his method and pressed the Physicians to come unto it, and the success was answerable. Few died in comparison of the numbers formerly destroyed. . . ." [11]

A second instance of Mather's leadership in matters of public health occurred during the measles epidemic of 1713, when, after having lost within a few days his wife, three children, and a maidservant, he suggested to " my Physicians " that they distribute directions for the best care of the sick. When, although refusing to do so themselves, they yet approved the suggestion, Mather himself wrote a four page pamphlet on the subject. Information contained herein, he stated, had been endorsed by " a Number of our most Eminent *Physicians*." He carefully lists symptoms, considers the history of the disease from the first appearance of the red marks through the crisis to the following period of greatest danger when the patient must " not be *well too soon,* and throw himself into a *Fever*." [12] He presents a theory of therapy designed to keep the patient warm and to rid him of morbid matter. The credit for this public service belongs to Mather, since he not only conceived the idea but wrote the pamphlet. There were apparently no repercussions on the part of either the physicians or the public from this action of Mather or from his earlier one.

His fearless leadership in the smallpox inoculation controversy of 1721 appears in a new light against the background of many years of medical reading, of his previous association with physicians, and of his former record of public action in a medical capacity. Moreover, at the outbreak of the inoculation controversy Mather had already been engaged for some months in writing his large medical treatise, " The Angel of Bethesda." A letter to John Winthrop, dated October 26, 1720, appears to be the earliest

[11] " Curiosities of the Smallpox," letter to the Royal Society of July 12, 1716, copied from a transcript in the British Museum.

[12] Mather's pamphlet on measles is extremely rare, only one copy of the first edition being recorded by Thomas J. Holmes in *Cotton Mather, a Bibliography of his Works*, 3 vols. (Cambridge, 1940), II, 523; this pamphlet, published anonymously, has been authenticated by Holmes. The full title is *A LETTER, About a Good Management under the Distemper of the MEASLES, at this time Spreading in the Country. Here Published for the Benefit of the Poor, and such as may want the help of Able Physicians* (n. t. p., n. d., Boston, 1713; 2nd ed., 1739).

statement by Mather that he was employed upon a medical work.[13] An entry in his diary of February 20, 1723-24, notes that the task has been completed.[14]

Speculation as to why the manuscript was never published in Mather's day brings to mind a growing sentiment, encouraged by Dr. William Douglass during the inoculation controversy, that the combination of the clergyman and the physician should no longer be permitted in a society that had come of age.[15] Even though Mather had been vindicated in his championship of inoculation before his death, yet his prestige was apparently not sufficient to warrant publication of the volume, either in London or in Boston. Soon after 1724 Mather's health began to decline.

During the almost two and a quarter centuries since its completion, "The Angel of Bethesda" has had only sporadic notice, and little of the criticism of it has been of a penetrating sort. Opinion of it has sunk from a high point of regard, as to its scientific value, in the eighteenth century to a low point of evaluation in the 1860's. Only a few ephemeral starts have been made to view it for its significance in the history of American medicine. Samuel Mather considered it one of the great performances which his father left in manuscript and on a par with his published *Christian Philosopher* and his still unpublished "Curiosa Americana."[16] As late as 1739 efforts were made, evidently by Samuel Mather, to publish the work in Boston.[17]

The manuscript lay unnoticed until 1869 when Dr. Oliver Wendell Holmes examined it. It is he who has written most widely and most seriously on "The Angel of Bethesda," and his appraisal of it has colored opinions as to its worth ever since. He first spoke of it at length in a lecture delivered in 1869, which was later included in his collected *Medical*

[13] "The Mather Papers," Massachusetts Historical Society *Collections*, fourth series (Boston, 1868), VIII, 445-446.

[14] W. C. Ford, editor, *op. cit.*, VIII, 698-699. However, the manuscript itself contains evidence of insertions which Mather made after this date.

[15] William Douglass, *The Abuses and Scandals of some late pamphlets In Favour of Inoculation of the Small Pox* . . . (Boston, 1722), pp. 7-8.

[16] Samuel Mather, *Life of the Very Reverend and Learned Cotton Mather* . . . (Boston, 1729), p. 72.

[17] The following advertisement appeared in the *Boston Gazette* for December 24, 1738—January 1, 1739: "There is prepared for the Press, and upon suitable Encouragement e'er long will be published. . . . The religious Family Physician: *offering The* pious Sentiments *which are proper for Invalids under their respective Bodily Maladies, and a* Collection of the most plain and approv'd Remedies *for them*: *By the late learned* Dr. Cotton Mather." This quotation appears in Holmes, *op. cit.*, II, 739.

Essays, published in 1883.[18] Meanwhile in 1881 he more briefly stated his unchanged judgment of the manuscript.[19] Holmes presents the "Angel" as a horrible example of what happens when medicine is joined with religion. "The divine takes precedence of the physician in this extraordinary production," he writes. "He begins by preaching a sermon at his unfortunate patient. . . . The simple and cleanly practice of Sydenham, with whose works he was acquainted, seems to have been thrown away upon him. . . . He piles his prescriptions one upon another, without the least discrimination. He is run away with by all sorts of fancies and superstitions. . . . But when he once comes to the odious class of remedies, he revels in them like a *scarabeus*. This allusion will bring us quite near enough to the inconceivable abominations with which he proposed to outrage the sinful stomachs of the unhappy confederates and accomplices of Adam." [20]

On the favorable side, Holmes remarks that although it is well that the work was never printed, yet there are passages in it worth preserving. These passages deal with Mather's recommendation of such remedies as chincona bark, ipecac and mercury, as well as six herbs. Holmes quotes at length from the section on smallpox, remarking by way of introduction that "it relates to the single medical suggestion which does honor to Cotton Mather's memory." [21]

Much of Dr. Holmes' criticism of the "Angel" is lacking in objectivity. His harsh criticism of Mather's recommendation of the use of human and animal excreta in his pharmacopoeia is in the final analysis a criticism of Mather for being a child of his age. Any standard pharmocopoeia of the time will bear out the fact that these ingredients were in common use. Holmes' position that the "Angel" suffers from pedantry amounts to a statement that learning is not worthwhile.

The manuscript fared no better in the analysis of its next critic, also a physician, Dr. Joseph Sargent of Worcester. Writing in 1874, Dr. Sargent stated that although Mather in his capacity as a clergyman had had forty years of experience in bedside observation of common diseases, "he treats mostly of these, and in no scientific manner. For there are no disquisitions on pathology and there is no account of morbid anatomy, nor

[18] Oliver W. Holmes, *Medical Essays, 1842-82* (Boston, 1883), pp. 312, 358-366.

[19] Justin Winsor, editor, *The Memorial History of Boston*, 4 vols. (Boston, 1881-1883), "History of Medicine in Boston, by Samuel A. Green, M. D., . . . with additional memoranda by Oliver Wendell Holmes, M. D.," IV, 557-558.

[20] O. W. Holmes, *op. cit.*, pp. 359-360.

[21] *Ibid.*, p. 362.

of diagnosis, and no history of symptoms nor of progress." [22] Dr. Sargent's chief criticisms are easily refuted, for had he searched for what he found lacking in the "Angel" in the writings of many a more renowned medical figure of Mather's time, he would have been little more rewarded, because these aspects of disease were at the time of Mather's writing only vaguely realized, except in the case of a few easily recognizable diseases.

Since 1883 only a few weak voices have been raised to place "The Angel of Bethesda" in its contemporary setting. The Reverend Abijah P. Marvin, Mather's biographer of 1892, remarked briefly of Mather's medical works: "His writings on the healing art have furnished some merriment for the doctors of recent times, because of the curious and ridiculous remedies prescribed, but these were not invented by him. He was merely the exponent of medical science in his day. . . ." [23] The few other notices of the manuscript have been even briefer.[24]

Against a background of published medical writings by Americans consisting only of pamphlets, "The Angel of Bethesda" is unique in presenting an integrated system of medicine. It takes on further importance since it displays the transit of ideas from Europe and offers proof of what appears to be the earliest statement in America of the animalcular theory of disease. At the same time it shows the pervading influence of ancient hypotheses and superstitions and in this respect extends backward our vision of medicine as practised in New England into the early decades of the colony's life.

In spite of occasional disgressions, Mather's over-all plan for his work called for a chapter each on one or more allied diseases; in each chapter there were to be offered symptoms, types, remedies, and appropriate religious thoughts for sufferers. Encompassing this plan, there was to be a framework of theory, both medical and theological.

[22] American Antiquarian Society *Proceedings* (Worcester, 1874), "Report of the Council," p. 14.

[23] Abijah P. Marvin, *The Life and Times of Cotton Mather* . . . (Boston, 1892), p. 13.

[24] Barrett Wendell, Mather's biographer of 1891, remarked of the "Angel" in a footnote, "valueless today, this is said to be a good manual of contemporary medicine"; *Cotton Mather the Puritan Priest* (New York, 1891), p. 276. Dr. William Sidney Thayer in "Cotton Mather's Rules of Health," *Bulletin of the Johns Hopkins Hospital* (September, 1905), No. 174, XVI, 293-300, wrote a brief report on the "Angel" but did not attempt a criticism. Other brief mentions are by W. C. Ford, *op. cit.*, VII, footnote, p. 3; Kenneth B. Murdock, editor, *Selections from Cotton Mather, edited with an Introduction and notes by Kenneth Murdock* (New York, 1926), Introduction, XXXI; Ralph and Louise Boas, *Cotton Mather, Keeper of the Puritan Conscience* (New York, 1928), p. 46. The writings of George Lyman Kittredge and Thomas J. Holmes on the "Angel" are bibliographical rather than critical.

The scope of the " Angel " is such that it deals with disease from both the religious and the practical points of view. Reconcilement of disease with religion is the first consideration upon which Mather sets to work before he is willing to consider individual diseases, being convinced that until religion and disease are philosophically harmonized, there can be no point in the consideration of the practical. Nor does Mather neglect throughout the " Angel " to balance the theological with the practical.

His theory is that sin, which can be traced to the original sin of Adam and Eve, is the cause of sickness. His first concern in sickness is, therefore, not medication, but prayer to God for the forgiveness of the sins of the diseased. The " Angel " is unique in that the old Puritan concept of a God of wrath dwells side by side with the new, in a manner and with a force not observable in any other work of Mather. The God of wrath spreads disease upon man, takes his toll in the childbearing of women, and snuffs out the lives of infants, while at the same time a glorious God of wisdom, goodness, and love helps His children to a better life. The insects and the plants, from which are derived some of the noblest remedies, are manifestations of Him, and man himself is noble, in body at any rate. Science becomes the handmaid of religion, revealing new glories of God, and it is eagerly to be pursued for a better understanding of God.

Mather's practical theory of disease is basically Hippocratic in that it follows the classical theory of humors and fluids. Closely allied to this hypothesis is the tension one of the animal spirits, in which lies the implication that their improper distribution in the body, and also the appearance of certain malignant spirits, are the causes of some diseases. The influence on medical theory of certain discoveries of the previous century, such as those of the circulation of the blood and of the glands and their functions, is clearly evident.[25] However, the author does not state his theory of disease without a protest. He was sufficiently conversant with the state of medical learning in Europe, and he also possessed sufficient keenness of mind, to put his finger on the weakest spot in the

[25] For instance, in writing of the cough, Mather explains in Chapter XXXVII: "The Pores (as we call 'em) of the Body, being duely kept open, they discharge an unknown Quantity of excrementitious *Lympha* and *Serum*, from the Blood. When those Pores are stop'd, these Liquors are increased and stagnated, and become sharp, and salt, and full of Acrimony, yea, and whether there be an Occasion for it, or no, the depraved Blood sometimes is filled with ill-figured Particles, which cannot pass diverse of the Glands, where a Percolation is expected for them. These Humours falling on the Membranes of the Lungs, or the Vessels about the Windpipe, or on some of the Nerves that serve the Respiration, the Irritation causes a *Cough;* which is a Struggle of Nature to dislodge the Enemy.

contemporary picture of the theory of disease—the lack of basic principles upon which a generally acceptable hypothesis could be erected. He frankly calls the talk of physicians about the causes of disease "conjectural," "uncertain," "ambiguous," and often a "meer Jargon." He calls for an end of the metaphysical gibberish and asks for a mathematical approach in the manner of Newtonian physics—"by the *Laws of Matter* and *Motion,* to find out the Cause and Cure of Disease." [26]

Mather shows a strong preference for the iatromechanical concept of the human body, stating that diseases are nothing more than the disorders of a machine, that the physician must be skilled in mathematics and mechanism and have an understanding of the organization, structure, and operations of the machine-like body in order to regulate its defects and disorders.[27] The iatromechanical terminology of the parts of the machine is frequently a striking characteristic of the "Angel." When the author states his opinion of the importance of the stomach in the organization of the body, he terms it "The Main Wheel." [28] The animal spirits reside in the stomach after their manufacture in the brain, and here also humors are bred; from the stomach the blood in its circulation frequently pumps them throughout various parts of the body to cause certain diseases. The great virtue of inoculation against smallpox is the fact that the disease by this method enters the outworks of the citadel, instead of attacking the "Main Wheel" of the stomach, as happens in the ordinary course of the disease.[29] Echoes of the contentions between the theorists of medicine are present in

[26] These words are included in the closing remarks of Chapter VII, "*Conjecturalies* or, some Touches upon, A *New Theory* of many Diseases." Mather makes similar remarks in Chapter XL, "A Pause made upon *The Uncertainties of the PHYSICIANS.*"

[27] For instance, Mather in Chapter VII quotes from the preface of Thomas Morgan's *Philosophical Principles of Medicine* (London,1725): "Since the Animal Body is a *Machine,* and Diseases are nothing else but its particular Irregularities, Defects, and Disorders, A *Blind* Man might as well pretend to regulate a Piece of *Clock-work,* or a *deaf* Man to tune an *Organ,* as a Person ignorant of *Mathematicks* and *Mechanism,* to cure Diseases, without understanding the natural Organization, Structure, and Operations of the *Machine,* which he undertakes to regulate."

[28] The title of Chapter XLII is "*The Main Wheel scoured and oiled,* or, Help for, The *Stomach* depraved (and *Vomiting*)."

[29] Mather writes in Chapter XX, "*Variolae Triumphatae,* The *Small-Pox* encountred," in regard to inoculation: "What if we should find out a Way that the Contagion of the *Small-Pox* may not (by the *salival Juices,* as tis commonly thought), enter the *Stomach,* and make a furious and Fatal *Combustion* in the phlegmatic and biliose Matter there, nor enter the *Lungs* more immediately, as with many perhaps it may; but enter by the *Outworks* of the Citadel, and carry off what it has to seize with very gentle Symptoms, and when it reaches the Stomach in that way yett to be presently conquered with an easy *Emetic* there?"

Mather's distrustful parenthetical remarks regarding the chemical conception of the human body.[30]

Mather's presentation of the animalcular theory of disease is a conjectural one, but one, he remarks, which " may be as good as many that have been more confidently obtruded and more generally received." Pursuing his expressed conviction that a distempered stomach is the origin of most diseases, he writes that the surfaces of all things swarm with little animals, whose bodies are covered with even smaller animals. These he conceives as being supplied with muscles, tendons, fibres, blood and eggs. It seems to him possible that the eggs and the insects might find their way through the air, through our food, and through the pores of our skins into our bodies; they might even enter our bodies with our nourishment before birth.

From this exposition the author concludes that diseases may be handed from parents to children, that a variety of diseases may be caused by various species of *animalculae*, that the same species affecting various parts of the body might also cause a variety of diseases, that vast numbers of them may cause epidemics that *animalculae* or their eggs, carried by travellers, might account for the spread of new diseases into distant countries and climates. Of the latter possibility he suggests: " It begins to be vehemently suspected that the *Small-Pox* may be more of an *animalculated Business* than we have generally been aware of." Malignant fevers, the itch, consumption and the *lues venerea* might also be spread in this manner.[31]

The significance of Mather's knowledge of the animalcular theory becomes clear when it is realized that not until about 1880 was it a generally accepted theory in America and that Mather's statement antedates by eighty-three years what appears to be the earliest animalcular

[30] In Chapter LVII, " A Physick Garden, or, A Consideration of the admirable Vertues, in certain *Plants* which every *common Garden* is furnished with," Mather remarks that " the *spagyrical* Gentlemen sometimes too much *neglect* the *simple Vegetable*" in their mixing of medicines. In his discussion of apoplexy he writes that " There is indeed a *Something* (and they who are positive and praesumptuous enough to speak more particularly, say an *Acid*), that kills or stops the Spirits . . . in this Distemper." In discussing rheumatism he speaks of the " wandring Pains in the Joints, which proceed (as we must say till we can talk to better Purpose), from a volatil Acid falling on the Membranes of them."

[31] Mather's chapter, " *Conjecturalies* or, some Touches upon, A *New Theory* of many Diseases," which contains Mather's statement of the animalcular theory, is derived primarily from Benjamin Marten's *A New Theory of Consumptions* (London, 1720), and secondarily from Richard Bradley's *New Improvements in Planting and Gardening, both Philosophical and Practical*, 3rd edition, 2 vols, (London, 1719-20).

hypothesis published in America—that of John Crawford of Baltimore in a series of articles in a literary periodical, *The Observer and Repertory*, in 1807 and repeated in a lecture in 1811.[32]

A cornerstone of Mather's medical system is his statement of a vitalistic theory, which he calls the " Nishmath-Chajim " or the " Breath of Life." This physical, but invisible, spirit partakes of the qualities of both the soul and the body, and may be not only the means of communication between them, but perhaps the vital tie between them. The Nishmath-Chajim is the seat of the instincts, directs the mechanical operations of the body, and supervises the formation and growth of children. The author believes that it explains the fact of unborn infants' being marked by their mothers' imaginations and might also possibly explain apparitions, witchcrafts and possessions. Moreover, it is toward the Nishmath that the operations of what is now called psychosomatic medicine should be directed. Anyone who can find methods of brightening, strengthening and comforting the Nishmath will be one of the world's most successful physicians.[33]

In discussing certain diseases or ailments, the author writes specifically and learnedly; in discussing others, he is philosophically vague, his treatment of the subject depending upon the extent of his reading and the state of contemporary medical knowledge. For instance, as might be expected, he writes learnedly of gout and dropsy; on the other hand he gives no causes for diseases of the eye, or of the ear, or for sore throat and quinsy.[34]

In his description of certain diseases, the author occasionally catalogues symptoms, but this cataloguing is limited to well-known diseases, such as *"lues venerea,"* consumption, ricketts, scurvy, and smallpox.[35] A certain consciousness of specificity is also present, although Mather does not make a major point of it.[36]

[32] Phyllis Allen, *Americans and the Germ Theory of Disease*, a University of Pennsylvania doctoral thesis, University Microfilms No. 1385 (Ann Arbor, Michigan, 1949), pp. 158, 163.

[33] The importance which Mather attributed to this theory is evidenced not only by its inclusion as Chapter V in the " Angel of Bethesda," but by the fact that it also forms a part of his unpublished manuscript, " Tri-Paradisus," that he sent it in 1721 as a letter to the Royal Society, and that it was published as a separate work in 1722 in New London, Connecticut, under the title of *The Angel of Bethesda*.

[34] Some chapters possess a skeletal quality in which the lists of remedies emerge as the most important sections. As an example, the chapter on the cough contains hardly a page dealing with its causes, but two pages of exhortations to piety and more than three pages of remedies.

[35] Mather frequently combines the cataloguing of symptoms with moralistic and religious exhortations.

[36] Mather's consciousness of specificity ranges from mere lists which are almost worth-

Against the background of chaos in the contemporary picture of therapeutic methodology and theory, Mather's theory of therapy yet possesses recognizable form, although it reflects the confusion of the age. It can be divided into the medicinal and the non-medicinal. In regard to the former, Mather's pharmocopoeia quotes both the mineral and the botanical remedies, many of them exotic and repulsive, of current English and continental pharmacopoeias. He stresses the use of herbs, human and animal excretions, and insects.[37] Transplantation as an element in preventive medicine is the most widely discussed of Mather's therapeutic theories; in this connection the "Angel" presents for the first time his essential collected writings on smallpox and smallpox inoculation.[38]

In reference to Mather's non-medicinal therapy, his recognition of the importance of emotional states in the patient is closely tied in with his belief in original sin as the ultimate cause of disease. It is true that in writing of the four diseases which he most dreaded—palsy, the stone, gout, and consumption—and in addition, of childbearing, the author seeks first to arouse in the sufferer an emotional state compounded of fear, repentance, and abasement, a logical step in uncovering the root of all evil, original sin. Granted these fundamental steps, the way is then open to bring about a peace of mind which is a necessary component in the patient's recovery. Since the stomach is not only the main wheel of the body, the seat of many diseases, of the animal spirits, but also of the humors and the passions, the close connection between physical disease and the patient's emotional state becomes obvious.

In regard to the subject of cures, the occult, to Mather's mind, is a field to be explored, as challenging as any of the new sciences; the problem is merely one of comprehending its action. The author has a twofold purpose in discussing the medical aspects of the invisible world. One is to state the possibility that good angels have more part in the communication of the remedies which God has sanctioned than mortals usually realize; the second is to warn against the operation of evil spirits in also communicating cures.[39]

less in consideration of this aspect of his medical knowledge to an ironical statement that there exist, according to one authority, forty-nine varieties of scurvy.

[37] Mather devotes a chapter each to the following: (1) herbs; (2) dung and urine; (3) beer, water and wine; (4) insects.

[38] These writings appear in Chapter XX, "*Variolae Triumphatae*, The *Small-Pox* encountred."

[39] Mather's remarks on this subject form Chapter VIII, "*Raphael*, or, Notable Cures, from the INVISIBLE WORLD."

" The Angel of Bethesda " thus illustrates both the strengths and the weaknesses of Mather's mind and of his age, and emphasizes the transitional character of both as they attempt to adjust themselves to the new discoveries in science. In certain fields Mather's adjustment is rapid and without difficulty, as exemplified by his open-minded attention to the animalcular theory and to smallpox inoculation; in others it is halting and measured, as shown by his determined belief in the operations of the invisible world. Always devoted to theory, he recommends the application of mathematical procedures to medicine, but neglects, save perhaps in one instance—his interest in the calculus of probabilities in smallpox—actually to apply them.

Mather appears in his most typical aspect, both in his medical writings and in his public actions, as the disseminator of medical knowledge, indeed one who, in the three instances in which he acted for the public welfare, possessed more advanced medical information than the physicians themselves. The distinction between Mather as a man of medicine and the typical professional physician of his time becomes a subtle one, for by " reading medicine " and continuing to do so, he had fulfilled the prime requisite of medical training. It is true that he had served no apprenticeship, but it is also true that he had had some practical experience. " The Angel of Bethesda," with its stress upon theory, its presentation of a complete medical system and its display of other aspects of medical learning, establishes his stature as a medical authority. Moreover, in its synthesis of Puritan theology with iatric hypotheses, it represents in a sense the flowering of the pastor-physician tradition, an old and important type in Europe as well as in America, and it reflects probably the best formulation in the English language of the ideals and viewpoints of the clerical physician. It is at the same time an index of the attitude toward medicine of the intellectual classes in colonial New England.

The Boston clergyman has no contemporary American rival in the scope of his medical writings. In this respect he far outstrips such able men as Boylston, Douglass, and Colden. Not until the appearance of Benjamin Rush in the 1790's is there a native medical writer with whom to compare him. " The Angel of Bethesda " is the only general medical treatise written in America prior to almost 1800. Mather then is the first significant figure in American medicine.

MEDICAL CARE ABOARD AUSTRALIA-BOUND CONVICT SHIPS, 1786-1840

DONALD R. McNEIL

On May 13, 1787, six transport ships, laden with cargoes of political and criminal prisoners, sailed forth from England to establish a penal colony in Botany Bay on the coast of Australia. As a result of the Revolutionary War, the former British colonies in North America were no longer available dumping grounds for prisoners. Britain needed new lands for open-air prisons and the expedition set out to transform the wilderness area of Botany Bay into a convict settlement.

Though the policy of transporting convicts to New South Wales from 1787 to 1840 posed many long-range social, political, and economic problems for the British Empire, the high shipboard casualty rate among men, women, and children compelled to make the journey to their new homes often took precedence over the more far reaching questions. Cramped quarters, unsanitary conditions, and poor medical care bred disease on board the transports and threatened the success of the venture. Indifferent at first to the plight of the convicts making the voyage, English colonial officials gradually took steps to provide some medical care and a system of sanitation for the unfortunates jammed together on the prison ships.

The death rates, though staggering, were in many cases lower than those on emigrant ships to America even though convicts sailing to Australia had an eight-month voyage while free emigrants going to America spent eight weeks aboard ship. The terrible conditions on sailing ships were not restricted to transports carrying charges of the government. Passage on any ship brought discomfort.[1] The convicts, however, were usually unable to protest their treatment at the hands of captains, naval surgeons, and crews and were dependent on colonial officials to represent them. Medical reform came slowly.

In 1786 the British government had engaged nine ships for the initial expedition to Botany Bay. While the government stocked the six transports and three supply ships[2] with enough provisions to last the new

[1] See Edith Abbott, *Immigration, Select Documents and Case Records* (Chicago, 1924), for first hand accounts of parallel conditions aboard emigrant ships.

[2] The transports were the *Alexander, Scarborough, Charlotte, Lady Penrhyn, Prince*

"settlers" two years, waterfront wags predicted dire calamity for the expedition. Old sea hands maintained that before the ships were at sea a month the commander of the fleet would have to convert one of his transports to a hospital ship.[3]

To command the expedition and to establish the new colony in New South Wales, the government appointed Arthur Phillip, post-captain in the Royal Navy. A small man with a shrivelled-up face and a tendency to become seasick, Phillip resolutely set about the task of avoiding the predicted disaster.

On January 1, 1787, four months before sailing, Phillip, in the first of a long line of protests leading eventually to reform, objected to the overcrowding of convicts on board the waiting transports anchored in English waters. Writing to Under Secretary Evan Nepean, Phillip warned that as the convicts embarked months before the time of departure he could not prevent fatal sickness among men "so closely confined." With an eye to the health of his charges, he complained of the lack of surgeons' instruments on transports and of overcrowding on the transport *Alexander*. With 184 men aboard and 36 more due to arrive, the convicts were already without space and were so closely confined that only 40 men could move about at the same time. In April he objected to the 109 women and children wedged on board the transport *Lady Penrhyn*.[4]

On May 13, 1787, the fleet of 11 ships set sail from England on the new colonization adventure. During their eight-week voyage to Rio de Janeiro, surgeons reported 95 sick in the entire fleet. In the month layover in Rio, Phillip ordered the ship captains to feed the convicts rice, beef, vegetables, and oranges to enable them to "resist the attacks of scurvy." To his superiors in London, Phillip boasted that only 15 convicts and one marine's child had died on the passage and that two transports had been supplied with medicine chests in Rio de Janeiro.[5]

The fleet proceeded to the Cape of Good Hope, where they loaded more provisions and sailed eastward for Australia. Sickness appeared on

of Wales, and *Friendship*. The supply ships were the *Fishburn*, *Borrowdale*, and *Golden Grove*. To complete the fleet, the government assigned the twenty-gun ship *Sirius* and the brig, *Supply*. See David Collins, *An Account of the English Colony in New South Wales* (London, 1910) p. 5.

[3] *Ibid.*, 10.

[4] *Historical Records of New South Wales*, vol. 1, part 2: 46, 77. Hereafter cited as *HRNSW*.

[5] Collins, *New South Wales*, 7; *Historical Records of Australia*, series I, 2: 113. Hereafter cited as *HRA*.

several of the ships but when the weather permitted, convicts were allowed on deck and " health was reinstituted." Seven women gave birth to children during the passage and after the ships' doctors baptized them, the various captains authorized an added allowance of grog — not to the participants nor their families — but to the crews of the ships where the births took place.[6]

By January 20, 1788, the entire fleet was safe at anchor in Botany Bay. Of the 756 convicts in the first fleet, 45 died on the passage. Four women convicts and five convicts' children were included in the total. In addition one marine, one marine's wife and one marine's child perished enroute to the new colony.[7] Phillip's precautions against sickness paid dividends. Compared with casualty lists of many of the later transports the first fleet came through in a relatively healthly state.

With the arrival of the second fleet in June 1790 the little band of settlers received their first news from home. Expecting food and supplies, the colonists were unprepared for the " distressing and miserable " cargo unloaded from the four ships of the fleet and for the tales of horror recounted by the passengers. The transport *Lady Juliana* arrived first. To one observer it was " mortifying " to find a cargo so " unnecessary and unprofitable " as 222 females, instead of a cargo of provisions.[8]

The Reverend R. Johnson told of his visits to the ships upon their arrival in New South Wales. On the transport *Surprise* he found convicts lying, completely naked, without bed or bedding, and unable to turn or help themselves. The Reverend Johnson could scarcely bear the smell that permeated the prison. Though the captain of the *Scarborough* " dissuaded " him from visiting that ship, Johnson found the *Neptune* even more " wretched and intolerable " than the *Surprise*. Some convicts died after the ships came into the harbor and their bodies were thrown into the water. The corpses were seen " laying naked upon the rocks." During the voyage even the sick had been chained together. Amidst the " groaning and crying and bitter lamentations " of the new arrivals, the spirits of the first settlers drooped. More than 450 ailing convicts disembarked adding the burden of their sicknesses to the problems of the colony.[9]

Many of the convicts suffered from scurvy and dysentery and many others were in the last stages of those " terrible disorders." Convicts not

[6] *HRNSW*, 2: 740. [7] *HRA*, series I, 1: 104. [8] Collins, *New South Wales*, 86.
[9] *HRNSW*, vol. 1, part 2: 386-389; E. O. G. Shann, *An Economic History of Australia* (Cambridge, 1930), p. 10.

requiring medical assistance were "lean and emaciated." The masters of the ships, always fearful of mutiny, had allowed only a few convicts on deck at one time. Fellow prisoners concealed the deaths of several of the transportees who had died in irons in order to share the dead men's provisions until "chance" and the "offensiveness of a corpse," directed the surgeon to the spot where it lay. The surgeons had failed to fumigate to "rectify the nauseous steams" emanating from the "miserable dungeon." [10]

The "barbarous" irons used to strap the prisoners together were made with a short bolt instead of chains that dropped between the legs and fastened with a bandage against the waist. About nine inches long, the bolts prevented convicts from extending either leg from the other more than an inch or two. They risked breaking their legs when they moved.

The number of deaths on the transports supported the contentions of observers that inactivity and poor treatment of the convicts would prove disastrous. The *Lady Juliana* lost five women and two children; the *Surprise* lost 36 men out 292; the *Scarborough* had 73 deaths out of 332 prisoners; and the *Neptune* lost 147 men and 11 women of 649 convicts embarked in England.[11]

Governor Phillip reported the number of casualties and again protested against overcrowding on the transports. Voyages such as those of the second fleet, he claimed, hurt the settlements, for many convicts had suffered so much enroute to New South Wales, they "never" would be capable of any labor.[12]

In 1791 ten ships comprising the third fleet [13] unloaded more sick convicts on the struggling penal colony. Though the 1695 males and 168 females who were landed were "not so sickly" as those who arrived on the second fleet, Governor Phillip complained they were so emaciated and so "worn away by long confinement, or want of food," that many would be a long time recovering and many would "not recover at all." One hundred ninety-four males, four females and one child died on the passage. Phillip's prediction came true. One month after their arrival, 576 of the 626 convicts under medical treatment in New South Wales were from the ships of the third fleet and, as Phillip had warned, they were a "deadweight on the stores." By the following March the unfortunate convicts

[10] *HRA*, series I, 2: 366-367; Collins, *New South Wales*, 89-90.
[11] *HRA*, series I, 1: 189.
[12] *HRNSW*, vol. 1, part 2: 354-355.
[13] The transports were the *Active*, *Queen*, *Albemarle*, *Brittania*, *Admiral Barrington*, *William and Anne*, *Salamander*, *Matilda*, *Mary Anne* and *Atlantic*.

from the third fleet were in the " same debilitated state " and 288 more had died. By contrast, in the seven months prior to their arrival, only 19 people had succumbed to sickness. For the entire year of 1792, 436 convicts died. Most of the casualties were those transported on the third fleet.[14]

Despite the high rate of casualties on the transports, Governor Phillip did little more than protest against the overcrowding on the convict ships. Shortly before his resignation in December 1792, Phillip filed his last criticism when he mentioned in his report that the convicts on the transport *Royal Admiral* were too crowded. He believed, though, that " strict justice " had been given them on the trip to New South Wales.[15]

Not until later did officials worry about the actual medical treatment on board convict ships. Red tape sometimes handicapped the surgeons in their efforts to prevent sickness on the ships. In 1791 when 220 convicts boarded the transport *Atlantic*, 12 or 13 of them were sick enough to be hoisted over the side in a chair. Surgeon James Thomson applied to exchange the sick men for convicts " more fitt to go the voyage," (sic) but as the ships were waiting for a fair wind, they " could not admitt (sic) of delay." [16]

As convicts often lay idle for months on transports before leaving English waters the danger of disease increased. In 1796 Surgeon John Fitzpatrick, a medical inspector of convicts in England, suggested preventive measures to be initiated by the captains of ships anchored in British waters waiting to sail. Fitzpatrick wanted all ships to be cleansed and fumigated before convicts were loaded, and after their embarkation, prisoners should receive vegetables, fresh meat, and malt liquor while lying idle in the holds of the waiting ships. Such treatment would fortify the prisioners against " scurvy and destructive putrid fever." Fitzpatrick also railed off a section on some ships for married men, their partners, and orphans. His measures were a step forward, but disinterested officials neglected to carry out his program and abuses continued.[17]

In May 1797 the transport *Brittania* dropped anchor in Sydney Cove and unloaded a story of barbarity and cruelty to the colonial officials. The resulting investigation pointed out some of the essential weaknesses of medical services on the convict ships. The surgeon of the ship, Augustus Beyer, who participated in the orgy, typified the low calibre of men employed to alleviate the medical hardships of prisoners traveling to

[14] *HRNSW*, vol. 1, part 2: 533, 538, 596.
[15] *Ibid.*, 2: 665.
[16] *Ibid.*, 80.
[17] *HRNSW*, vol. 3: 161-162.

Australia. Captain Thomas Dennott, master of the ships, had commanded his first mate to give " 6 dozen of lashes " (sic) to first offenders who tried to take off their irons. " *You* are to be the judge," ordered the captain, " and not the doctor." The first mate obliged his ruthless captain. One convict received 300 lashes one day and 500 the next. Though flogging was an accepted mode of punishment, 800 lashes in two days appeared excessive. Far from feeling resentment toward the captain for allowing the mate to decide the punishment capacity of the convicts, Surgeon Beyer sat on the quarter-deck during the floggings and tallied the strokes. He made no protest to the captain against the severity of punishment.[18]

The government had placed water sweeteners and ventilators aboard but the surgeon did not use them. When the lower berths in the prison became wet, the surgeon failed to take steps to dry them. Sailors and convicts testified that Beyer beat the women, that he refused to make night calls, that he visited the convicts' quarters only four times in eight or nine weeks and that he " brutally " treated a woman who had miscarried during the passage. The court decided that Beyer was " particularly culpable in not steadfastly protesting against the cruelties," and that he was " inexcusably negligent and indifferent " in his duties. To an " eminent degree," said the court, Beyer was an " accessory to the inhumanities." No charges were brought against him.[19]

By 1797 the British government had paid £229,234 14s 10d to shipowners and supply houses for the transportation of 4960 convicts. The government had spent another £116,639 9s 11d on government ships. The total of £345,874 4s 9d did not count victualling expenses for the navy.[20]

In August 1797, more than 9 years after the first convicts were landed, Governor John Hunter, on the recommendation of William Balmain, principal surgeon of the New South Wales colony, suggested for the first time a partial reexamination of the transport service. Hunter claimed that surgeons did not " strictly account " for hospital stores aboard the convict ships and the governor never received " any account of their practice " on the ships. He recommended that each surgeon should receive definite instructions along with his appointment. The Duke of Portland, Secretary of State for the Home and War Departments, agreed and

[18] Flogging was standard punishment. See W. L. Clowes, *The Royal Navy*, vol. 5 : 28-32, for eye-witness descriptions of the use of the cat-o-nine tails on sailors of His Majesty's Navy during this period. The naval surgeon attended the " ceremony " and decided how many lashes the offender could stand in one day.

[19] *HRA*, series I, 2 : 31, 36-68.

[20] *HRNSW*, vol. 3 : 376-377.

ordered instructions drawn up in accordance with Hunter's suggestions. Yet, the surgeons were not punished for neglecting or disobeying the instructions.[21]

In 1800 the Transport Commissioners revised the system of contracting for convicts' transportation and thereby eliminated another source of abuse. Instead of paying £23 per head, "dead or alive," to the owners of a ship carrying prisoners to Australia, the commissioners decided to pay £18 per head for adults and one-half that for children, with a bonus of £4 10s 6d for each convict landed safely. The bounty system, thought the commissioners, would insure the "good usage of the convicts." [22]

After the debacle aboard the *Royal Admiral* in 1800 when 43 convicts died of "malignant fever," Acting Governor King thought the appearance of the survivors testified to the "great attention" paid to the convicts to prevent any further mortality among them.[23] Though King insisted that most convicts received adequate treatment aboard ship, Lord Hobart of the Department of the Colonies became concerned over high casualty rates on the prison vessels and ordered another mild remedy. He required a written return from the medical inspector in England on the state of the convicts and settlers in all ships about to proceed to New South Wales.[24]

The inspector of convicts at Portsmouth, Mr. A. Graham, and Sir John Fitzpatrick, inspector-general of health acting under the Home Department, knew of the problems on the English side but were bogged down in rivalry. Graham told of convicts being "shamefully deprived" by the contractors' agents and Fitzpatrick bewailed the consequences of having pregnant women on transports. Convicts short of rations were susceptible to diseases, and, to Fitzpatrick, nothing contaminated the air as much as the "unavoidable consequences of women's lying in." Convicts surrounding the women were subject to the "effects of foul, contaminated, putrid air." Because Fitzpatrick insisted on "harranguing people at taverns upon the state of the convicts, whose friend he styles himself," Graham felt obliged to "talk very seriously" with his colleague. If he heard any more reports of Fitzpatrick's oratory, which had a "mischievous tendency," Graham warned he would be forced to "represent the matter in a formal manner.[25]

A Dr. Blanc, in charge of fitting out convict ships in England, also had remedies to offer. As diseases on board transports were generated by the

[21] *HRA*, series I, 2: 85, 228.
[22] *HRA*, series I, 2: 697; 3: 5, 83.
[23] *HRNSW*, vol. 4: 9.
[24] *Ibid.*, 367.
[25] *HRNSW*, 4: 678-679; *HRA*, series I, 3: 372-373.

" frequent breathing of the same air, and the stagnation of the breath and other effluvia of the living human body," he insisted convicts must have pure air but not in " currents." To insure pure air, suggested Dr. Blanc, all ships should have mechanical ventilators, which would consist of tubes proceeding from the deck overhead, with cowls at top. If they interfered with the ropes and sails the tubes should be continued from the opening in the deck close to the side of the ship, and would run up the side till they opened at the upper part of the gunnel. Scuttles should be cut in the side as near as possible to the deck overhead. In addition the planks amidships in the upper and middle decks between the fore and aft hatchways should be taken up. The opening could be secured from the weather with a roof. A built-in hospital completed his list of recommendations.[26]

An experiment with three convict ships in 1801 further manifested the Transport Commission's concern for the health of prisoners journeying to New South Wales. To the masters and surgeons of the transports *Minorca, Canada* and *Nile,* the commissioners dispatched explicit detailed instructions for treatment of the convicts. Prisoners should be allowed on deck, berths were to be cleansed and fumigated and the ship was to be kept " sweet and clean." The surgeon would keep a diary of sicknesses, medicines administered, and dispositions of the ailing. He would record the dates the decks were scraped, the ship fumigated and the prison ventilated. On their return to England the masters and surgeons were required to produce a certificate stating the governor was satisfied with their conduct. They were " recompensed " or " prosecuted " accordingly.

Acting Governor King reported the consequences of the experiment in glowing terms. King thought the passengers were " all in good health " and the convicts were the " healthiest and best conditioned that ever arrived " in New South Wales. By holding the officers directly responsible, the commissioners took one more step toward better treatment of convicts. King carefully informed the colonial office of his procedure upon the arrival of convict ships. A naval officer and surgeon visited the ship and if there was no contagious disease, King went aboard. He inquired into the behaviour of the prisoners and the passengers and asked them if they had any complaints about rations or treatment during the voyage. If there were complaints, King forwarded them to England.[27]

With all the attempts to maintain the health of convicts, the remedies were only token gestures and were not consistently carried out. In the

[26] *HRNSW*, 4: 744-747.
[27] *HRA*, series I, 3: 97-98, 379, 583; 4: 425.

summer of 1802 two transports, the *Atlas* and the *Hercules*, sailed into Sydney harbor with their cargoes of death. Of 320 convicts, 127 died on the passage. Governor King reported the "miserable state of the survivors." The ships' officers had deprived the convicts of air and "dreadful diseases" raged on board. The "whole of the Convicts" were dead or dying and existed in a "filthy state."

Surgeon Thomas Jamison, a passenger on the *Atlas*, submitted details of the grim voyage that lasted seven months and nine days. Richard Brooks, the master, had loaded so many supplies "for his own private trade" that it became necessary to keep the air scuttles closed and the deadlights frequently shut in. The master's private supply of lumber occupied valuable space in the prison. The ship's surgeon did not attend to the health of the convicts who lived in "accumulating filthiness." The hammocks and bedding were not aired and the air became so "noxious that it extinguished the candles in the cabin." Casks were stowed in the hatchways and the after hatchway was "boarded up tight." The sick were confined to a diet of "Pease, Barley, Rice, and Oatmeal," and their animal food was "entirely withheld." The prisoners had two pairs of heavy irons on their legs and around their necks with a 1½ pound padlock dangling from them. The captain used half of the hospital for a sailroom and the sick slept with the healthy in the prison.[28]

Depending upon the individual abilities of the surgeons and masters, conditions varied on convict ships until the close of the Napoleonic wars. The Government was busy waging war and had little time to devote to transportation reform. The more capable doctors accompanied the armies and served on warships while the convict transports drew the inferior talent. The end of the struggle on the European continent coincided with the receipt by the Home Office of the first real comprehensive report of the weaknesses and shortcomings of the transportation system to New South Wales.

The report stemmed from the high casualty rate aboard three convict transports, the *Surrey*, *General Hewitt*, and *Three Bees*. On hearing reports of mismanagement by the officers and the extent of the "wretched and deplorable State of Disease" aboard the three vessels, Governor Lachlan Macquarie instituted the investigation.[29] The energetic governor assigned William Redfern, assistant surgeon in the colony, to conduct the inquiry. Redfern, a former convict, had been a surgeon's mate in the navy and had been transported for his part in the mutiny at the Nore in 1797.

[28] *HRA*, series I, 2: 584; 3: 531, 554, 701. [29] *Ibid.*, 8: 274.

He had received his pardon in 1803. In accordance with Governor Macquarie's custom of recognizing ability regardless of background, the chief executive entrusted the former convict with the investigation.[80]

On the transport *Surrey* the "Fever" still raged on board when the ship anchored in Sydney harbor. Besides 36 dead convicts, death had struck the naval hierarchy also. The captain, the first and second mates, the boatswain, and the ship's surgeon lost their lives. Redfern discovered that the surgeon had taken only half-way measures and had dispensed with those before the voyage ended. As there were never more than 50 convicts allowed on deck at one time, the prison was never ventilated, cleansed nor fumigated. Washing days passed unobserved and the issuance of wine was discontinued. Redfern hoped the deaths of the captain, surgeon and mates would be an "Awfull (sic) and useful lesson" to transport officers in the future.

Desiring to order baths for the prisoners on their arrival, Redfern asked the purser of the *Surrey* for a "little soap." The purser replied, "There was none, it was all expended." A few days later Redfern discovered that a quantity of soap was inserted in the invoice of goods that the ship's officers had for sale. When Redfern suggested the possibility of an investigation of the fraud, the officers promptly sent five boxes of soap to the General Hospital in Sydney as the "remains of unexpended Stores." Governor Macquarie endorsed his investigator's findings with a report to Lord Bathurst's office stating that the diseases on board the *Surrey* "Originated in the Neglect of the Master and Surgeon." [81]

Conditions on the transport *General Hewitt* were similar to those on the *Surrey*. In March 1814 Redfern had served on a Medical Court of Inquiry into the conduct of the captain and surgeon of the transport *General Hewitt* and had signed the decision absolving the two officers of negligent conduct. The court found that "Every attention was paid to keeping the Prison and Hospital carefully cleansed, fumigated and ventillated," and that the comforts placed on board for the sick were "duly appropriated for that purpose." [82]

In September when Redfern submitted his comprehensive report on the transportation system, he told a different story. Several layovers at various ports in England started the trouble on the *General Hewitt*. Officers confined the convicts below while the ship remained in port. Sickness

[80] Percival Serle, *Dictionary of Australian Biography* (Sydney, 1949), 2: 261-262.
[81] *HRA*, series I, 8: 274-275, 279-281, 284, 295.
[82] *Ibid.*, 244-248.

appeared before the ship left English waters on August 26, 1813. The ship's surgeon later insisted he would have objected to 15 or 16 prisoners who embarked, had there been time and the administrative machinery for removing convicts at the last minute. During the voyage, the convicts were divided into messes of six men each, and six messes were admitted to the deck in rotation during the day. At Madeira they were kept below for nine days and at Rio de Janeiro for ten days.

Shortly after leaving Rio, sickness increased to an " alarming degree," and the convicts were allowed access to the deck during the day for the remaining part of the voyage. But according to Redfern, " It was now, Alas! too late." The issue of wine, mustard, and vinegar was irregular and deficient. After leaving Rio, the surgeon and officers of the ship neglected to enforce cleanliness and the convicts became " exceedingly filthy." They dispensed with ventilation and fumigations six weeks after their departure and allowed convicts no fresh water to wash clothes. Redfern's account of the *General Hewitt* in September differed a great deal from his report in March.[53]

On the transport *Three Bees,* Redfern reported, the convicts were " extremely dirty both in person and dress " on their arrival in the colony. Nine men died on the passage. Redfern attributed the outbreak of scurvy to an unfortunate incident. Soon after the ship left Rio de Janeiro, a strange sail appeared on the horizon. Fearing pirates, the captain ordered his crew to stack the prisoners' bedding on the deck as a barricade. Though the approaching ship proved friendly, rain drenched the bedding during the night. When it would not dry in the open air during the next few days, the prisoners carried the bedding below with orders not to use it. The convicts disregarded the command and " Scurvy . . . made its appearance." Only one prisoner at a time had access to the head and the soldier-guards delighted in throwing obstacles in their way " on these occasions." Prisoners were denied even salt water with which to wash once a week.[54]

The importance of Redfern's report was not the condemnation of unhealthy conditions aboard three particular transports. Using the cases of the three ill-fated convict ships as a basis, Redfern proposed a complete overhauling of the transportation system. His sweeping remedies were the logical conclusions drawn from prevalent conceptions of disease causation.

Redfern traced the " ill state of health " and great " Mortality " on prison ships to " ignorance or inattention " to the regulation of air. He theorized that the bodies of men, closely confined, possessed a " power of

[53] *Ibid.*, 276-278, 284.

[54] *HRA*, series I, 8: 278-279, 284.

generating a most subtle poison," which not only injured the person who generated it, but spread a " baneful influence far and Wide Among All, who come within the Sphere of its Action." To support his contention that the generator of the poison was injured he cited the case of " Mrs. Howitt " and others who escaped from the Black Hole in Calcutta and afterwards were " Seized with the Fever."

To substantiate his theory that confinement and air spread diseases he recounted the old jail story of 1750. On May 11, 1750, prisoners in the Old Bailey, who had been kept in small, ill-ventilated, and crowded apartments and who had " jail fever," were brought into court. The windows at the end of the hall opposite the judges were thrown open. The people, the Lord Mayor, and many of the Middlesex Jury, who all sat on the left side of the court and partook of the air, were " infected with fever," and " seized with distemper." The Lord Chief Justice, the Recorder, and the London Jury who occupied the right side of the court, and who were not exposed to the air currents that spread the diseases of the prisoners, escaped injury.[35]

Redfern sarcastically asserted that if the transport ships had been built purposely to favor the " propagation of contagion," they could not have been designed with a " more effective plan " than those being used at the time. To remedy the defects Redfern submitted some concrete proposals. Officers of transports should allow prisoners and bedding on deck each day the weather permitted, should clean and fumigate the prison, open hatchways, ports, and scuttles, and should whitewash the prison and hospital every two or three weeks. To assuage the captains' fear of mutiny, ships should carry fewer convicts so that all prisoners could be on deck at the same time without endangering the safety of the ship.

For diet reform Redfern suggested an increase in the wine ration to ¼ of a pint per person daily. The wine would " counteract debility arising from bad weather, confinement below, and despondency." The wine, if diluted one half with water and added to a small portion of lime juice and water would " furnish an Article highly antiscorbutic."

Another source of illness on ships, said Redfern, was the poor quality of convict clothing. The great and sudden change in climates during the passage and the convicts' need of warm clothing caused " Colds, Pneumonic Complaints, and Rheumatism," which in turn led to scurvy, fever, and dysentery. To insure health on the transports, particularly during

[35] *Ibid.*, 287-290.

winter voyages, prisoners should have woolen or flannel clothing and an extra blanket to keep them from sleeping in their clothes.

In reply to reports that woolen clothing had the " property of imbibing and retaining the principles of Contagion," Redfern asserted that personal cleanliness was the answer. And he suggested a form of " cold Affusion " which the convicts should undergo every morning. According to Redfern an " affusion of cold water over the body " was a " powerful means of preventing the generation of Contagion," for such treatment washed off the " Effluvia " from the body and enabled the person to " resist cold and even Contagion itself when present." [36]

Having discussed reforms concerning air, diet, cleanliness, and clothing, Redfern turned to the greatest weakness of all — the system of employing surgeons on the ships — and launched a frontal attack. Transport surgeon appointments, claimed Redfern, went to either students fresh from the lecture rooms or men who had failed in private practice. The students were " ill-qualified " to take charge of the health of two or three hundred men or women on a long voyage through various climates and under " distressing circumstances "; and the civilian failures " devoted themselves to inebriety."

As the shipowners employed the ship surgeons the masters treated their medical men as they did their apprentices — with " rudeness and brutality," and the doctors, as a consequence, became drunkards. The convicts became the " unhappy Victims of the Captain's brutality and the Surgeon's Weakness, want of Skill or drunkenness."

For this long-existing evil, Redfern proposed that surgeons be appointed by the government and be selected from the surgeons in the royal navy. The naval surgeons should be invested with " full power to exercise their Judgment (sic) without being liable to the Controul of the Masters of the Transports." As surgeons often suffered from diseases and were overworked, an assistant surgeon should be provided for each ship. Redfern also wanted an agent to be sent along on each transport to see that convicts were not mismanaged and suggested that the naval surgeon might combine the two offices of principal medical officer and agent with good effect.[37]

[36] *HRA*, series I, 8: 279-281, 285.

[37] *Ibid.*, 290-291. A confusing story is told in *HRNSW*, 2: 6 (footnote.) The editor states that as a consequence of the deaths in the second fleet in 1790, the government placed a surgeon of the royal navy on board each transport, vested with the general control of convicts. There is no supporting evidence for this conflicting statement. On the contrary, the documents point to the year 1815 as the time of change to use of naval surgeons — and as a direct result of Redfern's proposals.

In an accompanying letter to the Transport Commissioners, Governor Macquarie backed up the disclosures of his investigator. Macquarie hoped the commissioners would issue instructions to " avert the recurrence of such Calamities for the future," and warned that unless the " unfortunate Convicts in Prison Ships are frequently brought on Deck to enjoy the benefit of fresh air, and the Berths below thoroughly washed, cleaned and ventilated, Disease must be the consequence.[38]

In 1815 as a result of Redfern's report, the Home Office began assigning naval surgeons to convict ships with the title, Surgeon-Superintendent. Explicit instructions on the care of convicts and responsibilities of the doctors were aimed at eliminating many abuses. With Napoleon safe on his island, His Majesty's service could devote more time and energy to reform.

Governor Macquarie was quick to point out the benefits of the new system. In 1816 he wrote Earl Bathurst concerning the arrival of four transports. All convicts had arrived in " Excellent Health, and without any Complaints." Again in 1817 he noted in a dispatch to Bathurst how many lives of convicts had been saved by the " Introduction of the New System of sending properly Qualified Naval Surgeons in Charge of the Convicts." Bathurst agreed and praised the new medical arrangements for there was " No more cause for lamenting the prevalence of that Sickness and subsequent Mortality." [39]

Though the new system of sending naval surgeons lowered the mortality on the convict ships, some surgeons still indulged in acts of cruelty. On the arrival of the Transport *Chapman* in 1817 Macquarie branded the conduct of the captain, surgeon, and officers of the ship as " wanton, indiscriminate and unprovoked." Through some minor intrigue among the convicts, the captain of the *Chapman* conceived the idea that the prisoners were about to mutiny. Three times during the voyage he ordered the guards and seamen to fire on the convicts. Five convicts were killed outright, seven more died from gunshot wounds during the voyage. Two seamen were shot and killed and two prisoners died of fever.

The ensuing investigation implicated the surgeon, Alexander Dewar. John Thomas Campbell, secretary to the colonial government and a member of the board of inquiry, pointed out that Dewar did nothing to restrain the " enormities " and was as guilty as the other officers for the " apathy and indifference with which he beheld these scenes of slaughter." His " coldblooded manner " when he stood by and witnessed the infliction

[38] *HRA*, series I, 8: 275.

[39] *Ibid.*, 56, 202, 344.

of the "wanton and barbarous" punishments, implicated him in the responsibility for the deeds. Surgeon Dewar had refused medical assistance to the convicts after the shooting fray. This, said Campbell, was an "instance of savage barbarity, of brutal inhumanity."

Convict Patrick Smith testified that Dewar left the wounded in the prison because the surgeon feared for his life if he went down to treat them. As the doctor's helper on the voyage, Smith received orders from Dewar after the first shooting that Smith should not, "on pain of (his) life," rise out of his berth from daylight in the evening until daylight the following morning, and should never call Surgeon Dewar for aid during the night. Smith told of two convicts who crept out of bed during the night and crawled toward him and "died in agonies," because Smith, following Surgeon Dewar's orders, could not get up to help them.[40]

After the inquiry Justice Barron Field thought the officers of the ill-fated transport should be sent home and tried for murder in the High Court of the Admiralty. Governor Macquarie agreed with the recommendation and sent the officers of the *Chapman* to England under "close Military Arrest" to stand trial for murder. Macquarie's interest in justice brought a sharp rebuke from Earl Bathurst in the colonial office. After informing Macquarie that all the persons connected with the *Chapman* had been acquitted, he reprimanded the governor for causing the government so much expense. As the government had to free 13 convicts to enable them to give evidence, Bathurst warned Macquarie against sending offenders to England unless the charges were supported by a "Body of Evidence worthy of Credit." [41]

Since the first female convict ship had landed in New South Wales in 1790, passengers and officers of the ships, governors and officials of the colony and the convicts themselves had deplored prostitution on the transports. As Macquarie reported in 1818 after the celebrated investigation of the female transport *Friendship*, prostitution had occurred before but as all officers participated, a "good Understanding was thereby preserved between all parties." In the case of the *Friendship*, Macquarie said, that was the first time the facts had been "brought to Public View."

Macquarie endorsed the board of inquiry's findings that Captain Andrew Armett and Surgeon Peter Cosgreave were the only ones on the *Friendship* who had not indulged in the "Very Indecent and licentious Intercourse" between the officers and crew and the 97 female convicts. In a gross understatement of fact, Macquarie suggested that the "unfortunate

[40] *Ibid.*, 9: 6, 580-581, 654.

[41] *Ibid.*, 9: 561, 695; 10: 143-144.

Creatures" could not in any way be "considered during such a voyage as *Free Agents*." [43]

Surgeon Cosgreave told of his attempts to fight prostitution during the passage even though the officers of the ship "showed the Example, and encouraged a Continuance of it!" At Portsmouth when a female convict "Was found in the Hammock of one of the Men," the surgeon kept her on the after part of the Quarterdeck as a mark of disgrace. Because of this and other similar efforts on the part of the doctor to restrain prostitution, a "spirit of Mutiny" arose and he "lost all Controul over the Convicts in a moral point of View," and abandoned the method. According to Cosgreave the women "Constantly lived in the Men's births, (sic) and the officers took off the Hatches at Night to let up others for themselves and for Such as wanted them." The men "even claimed as a right the effects of their respective deceased prostitutes." Even the women resented Surgeon Cosgreave's attempts to halt the orgy and "left the calls of Nature in the Prison" to annoy him.

When the ship stopped at St. Helena, Cosgreave protested to the Admiral, and after two post captains investigated, it seemed to the ship's surgeon that "every act of profligacy . . . received the Sanction of Law." At the hearing Cosgreave contended that one seaman's severe attack of "Pulmonary Affection" (sic) was "materially aggravated by his continued intercourse with a female named Sarah Randall."

Convict Ann Barfoot, though admitting nothing, testified that a "general intercourse took place between the Men and the Women." Seaman John Paterson testified that when he saw all the officers "take Women," he "took one" himself, yet he believed that "nothing whatever took place in the ship which could Violate Decency." The court decided Surgeon Cosgreave and Captain Armett had done their best to prevent prostitution — but in vain.[44]

In 1820 prostitution on transports was once again exposed to public view. When the female transport *Janus* arrived in New South Wales, John T. Campbell, Macquarie's secretary, went aboard and asked if the women had any complaints and all replied they had received "kindly treatment" by the officers, surgeon, and seamen. Several weeks after the females were assigned to settlers or placed in the government factory at Parramatta, many of the convicts were found pregnant.

A plea from one of the convicts to her employer, Nicholas Bayly, for a pass to Sydney to find the first mate of the transport *Janus*, who had

[43] *Ibid.*, 9: 751-752.

[44] *Ibid.*, 9: 752-756.

fathered her child on the passage over, touched off the investigation. What made Lydia Esden, the convict, "So Anchous" (sic) for a pass was that the ship was "goeing a Waleing," (sic) and she was sure he would "Not Stay But Very Little Longer." Bayly investigated and found that Lydia was pregnant and that another convict, Mary Long, had lived with the captain on the *Janus* and wanted "recompence from him for her prostitution." Though Mary could not write she told Bayly that another convict had lived with the Doctor during the trip before he died. Bayly turned his evidence over to Governor Macquarie and the Governor appointed a board of inquiry.

During the trial the captain of the *Janus,* Thomas J. Mowat, insisted he tried to suppress the intercourse between the sailors and the women but he feared a mutiny if he were "too rigid." He admitted it was "utterly impossible" to completely "suppress the vice." As for Mary Long, said Captain Mowat, she only did his washing. Other female convicts who had traveled on the *Janus* testified that before the ship's surgeon died, he had warned them only to be "circumspect" about their prostitution and the ladies quoted the doctor as saying he "would have a Woman in his Cabin," if it were not for the priests on board.

The board of inquiry decided that prostitution had prevailed on the transport and that the officers had attempted neither to suppress nor to prevent it during the voyage. Still the guilty officers received no punishment.[44]

In 1830 Mrs. Elizabeth Fry of New South Wales suggested the use of monitoresses on female ships. She felt sure "free Women of good Character," would be able to obtain employment on arrival and would prove good disciplinary officers on the ships. Nothing came of Mrs. Fry's proposals.[45]

Throughout his regime (1810-1821) Governor Macquarie protested against excesses and wrote commendatory dispatches when surgeons brought their human cargoes through safely. His conduct in the case of the transport *Lady Castlereagh* exemplified his attention to individual convict ships. After the "very unusual circumstance" of 300 convicts arriving in such "Perfect Health" on the *Lady Castlereagh,* Macquarie inspected the ship and found the captain had subdivided the prison into three separate parts. Gone were the "dark and gloomy bulkheads of heavy Timber" used in other prison ships and in their places he found the compartments divided by an open iron railing, whereby the "current of

[44] *HRA,* series I, 10: 318-331. [45] *Ibid.,* 15: 708.

air was not impeded in any Material Degree." When Macquarie reported the improvement, the colonial office informed him that all convict ships in the future would be "fitted up in similar manner." Slowly responsible officials initiated reform.[46]

As a result of Redfern's report in 1814 the transport commissioners began issuing explicit instructions to the naval surgeons on convict ships As surgeon-superintendents they would report any deviations from instructions by the captains; see that no private goods were loaded; supervise the issue of rations and inquire into the diet, nursing, and general comfort of the convicts. The doctors would visit the sick twice a day, and the healthy frequently; and as cleanliness was "essentially conducive to Health," they would keep the prison clean and airy by proper ventilation. Convicts with "infectious Complaints" who entered the ship's hospital would have their clothes stripped off, hair cut, and be washed in a bathtub with warm water and soap. Their clothes would be "steeped for some time in cold water" and their woolen garments were to be exposed to the fumes of sulphur or to the open air for two or three days. "Patients should be bathed at least once a Week while on their Passage," read the orders. The surgeons were to keep an account of medicines expended and a journal of cases treated, with diagnosis, treatment, and possible preventives in the future. The surgeons would have to deliver the journal to the office of the Secretary of State for the Home Department before they could receive their pay.[47]

As the captains received similar regulations and doctors and captains were ordered to check on each other's conduct, there was often conflict of authority. In 1819 Macquarie acknowledged the disputes between the captains, the officers of the military guards, and the surgeons with a letter to Earl Bathurst, in which he outlined proposals for ending the squabbles arising out of the division of authority on transports. Realizing that friction was caused by "Jealousy of Authority" and a "Mistaken Notion" of what the Government expected of each, Macquarie submitted instructions, which, if issued prior to sailing, would eliminate the difficulties.

The proposed instructions gave the surgeon-superintendent almost absolute control over the prisoners. No prisoner could be punished without the surgeon's consent, and the doctor was in charge of enforcing cleanliness and submission in the prison. The surgeon, the officer of the guard and the commander of the ship would vote on minor details such

[46] *Ibid.*, 9 : 807 ; 10 : 142-143.

[47] *Ibid.*, 9 : 600.

as where the sentries were to be placed and the number of convicts to be allowed on deck for fresh air. Each of the three principal officers would submit a report at the end of the voyage stating any objections or criticisms about the conduct of the others.[48]

The colonial office incorporated most of Macquarie's proposals into a new set of instructions issued to the surgeon-superintendents of transports. Though the new arrangement ironed out some of the jurisdictional difficulties between officers of transports, many ships still arrived bearing unhealthy convicts. An investigation in 1822, prompted by the arrival of the scurvy-ridden transport *Minerva,* indicated the extent to which governors checked on the activities of transport officers. Only three convicts died on the passage but Governor Sir Thomas Brisbane quickly appointed James Bowman, principal surgeon in the colony, to conduct an inquiry. Bowman discovered that Surgeon Tweade had allowed convicts to " dispose of their Salt Beef " to a person on board and " disease began to make its appearance " because no substitute was given for the meat and the convicts lacked " sufficient nourishment." Tweade neglected to provide lemon juice regularly for " prevention of disease " and kept no diary of the sick in accordance with his instructions. Many of the convicts had their irons on during the entire voyage and thus did not have the benefit of exercise and pure air, " so essential for the preservation of health." [49]

In 1837 Sir Francis Forbes told a Select Committee of the House of Commons about a convict ship on which he sailed as Surgeon-Superintendent in 1823, when the convicts were kept in irons throughout the trip.[50] Despite attempts by colonial officials to remedy abuses, many officers still subjected the prisoners to brutal treatment, and almost always without punishment.

During the 1820's and 1830's the officers in the colonial office became more and more concerned over the details of transportation. No problem was too small for their scrutiny. In 1829 when Governor Darling of New South Wales mentioned in a report that the wine on convict ships was "quite unfit for the purpose," Sir George Murray of the colonial office took pains to point out that the wine, referred to in Darling's report, was not for use by " *sick* Convicts." He enclosed a letter from the Victualling Commissioners stating that wine supplied for convicts was " good, sound

[48] *Ibid.,* 10: 46-47.
[49] *Ibid.,* 612-615.
[50] " Report from the Select Committee on Transportation," in *British Parliamentary Papers,* vol. 19: 1.

Spanish Red Wine," which was supplied also to the officers and men of the fleet.[51]

An episode over weaning of babies further indicated official concern over relatively minor details of the transportation system. When Surgeon George Fairfowl of the transport *Sovereign* wrote Governor Darling the circumstances surrounding the death of the infant daughter of convict Mary Morris aboard his ship, the governor relayed the letter of protest to the home office. Surgeon Fairfowl claimed the baby died from "Marasmus," caused by being "most injudiciously weaned" at the age of three weeks to comply with an order that no females should be embarked until 30 days after their children had been weaned. As a result of Fairfowl's protest, British officials changed the Secretary of State's Warrants for removal of female convicts to transports. What the original directions had meant, said the colonial office, was that no woman was to be removed from an English prison until 30 days after the "usual time of weaning children." The warrants now expressly directed officials to note that a female convict was not to be embarked while she had a "Child at the Breast" under six months of age, and if the infant was over six months old, the mother must have a certificate from the attending surgeon that the child could be "safely weaned." Undersecretary Hay wrote Governor Darling that measures had been adopted to "prevent the recurrence of such a calamity."[52]

In the late 1820's the increasing duties of surgeon-superintendents involved them in a struggle concerning indentures of convicts. When Lieutenant-Governor George Arthur reminded the colonial office of the importance attached to "indents," Sir George Murray assured the Governor that all surgeon-superintendents carried indents — lists of prisoners together with particulars about their crimes, characters, trades, and former connections.[53]

In reply Governor Darling submitted testimony of three surgeons who did not have the "lists." Surgeon W. Anderson of the transport *City of Edinborough* said he was "not in possession of any document of the kind." When he personally applied to Dr. Trevor, who superintended embarkation of convicts in England, Trevor "refused" to furnish him with the list. Anderson regretted the absence of the list for he had to "grope" his way among the prisoners, unacquainted with their previous characters, habits, and crimes. Surgeon T. B. Wilson of the transport *Governor Ready* had much the same story to tell. When Wilson asked for the list, Mr. Beatty,

[51] *HRA*, series I, 14: 780; 15: 277-278. [52] *Ibid.*, 15: 117, 392-393. [53] *Ibid.*, 14: 242-243.

the overseer of the hulk *Surprise* advised him that Dr. Trevor would not "permit any such List to be given." To Surgeon Charles Cameron of the transport *Ferguson*, Dr. Trevor refused to give the list because Cameron "might become prejudiced against a Man by knowing that his Crime was bad," and might "ill-treat him, or allow others to do so." Cameron "remonstrated with him," but "without avail."[54] As the shipboard doctors became more and more responsible for the conduct as well as the health of the convicts, the indenture controversy assumed greater importance. Though the government had issued explicit directions for surgeon-superintendents to receive the indents, Governor Darling still felt that it was the "practice as well in Ireland as in England, to refuse furnishing the Surgeons with Lists."[55]

In 1834 Governor Richard Bourke had still another complaint to make of the indents. Even when the surgeon received them, the indentures often did not specify the crime nor tell the character or conduct of the prisoner. As the surgeon-superintendent reported on the conduct of the prisoners "in very general terms," often merely pointing out one or two convicts as either good or bad, the character of the convicts remained unknown to the officials in New South Wales.[56]

In 1835 Governor Bourke suggested a new role for surgeons. With the transportation system declining, colonial officials began looking to free immigrants as the source of population and Bourke asked the Admiralty if he could use the naval surgeons as immigrant agents in England. As surgeons knew the colony and understood the proper management of large numbers of persons embarked on vessels for long voyages, they would serve well both the government and the colony. In 1836 Colonial Undersecretary James Stephen agreed and outlined the duties of the surgeons as immigrant agents. Doctors appointed by the local government would select the immigrants, superintend their embarkation, and conduct them to their destination. One month later Lord Glenelg, Secretary for War and the Colonies, outlined the pay schedules of the new immigrant agents Surgeons received full pay of a surgeon in the navy. They were allowed 10s 6d a day while selecting immigrants and were given £80 passage money to the colony and £100 for their return voyage home. If the surgeons did satisfactory work, they received a gratuity of £150.[57]

The use of surgeons as immigrant agents indicated the changing status of naval doctors and the improved conditions aboard transport ships. The

[54] *Ibid.*, 14: 564-565; 679-698. [55] *Ibid.*, 696-697. [56] *Ibid.*, 17: 317-318.
[57] *Ibid.*, 18: 161, 409, 546-550. *Parliamentary Papers*, 19: 178-186.

higher calibre of surgeons used, together with the health improvements they instituted, made colonial officials confident that surgeon-superintendents would qualify as satisfactory immigrant agents.

In 1837 before a Select Committee of the House of Commons several witnesses testified against the ill effects of long voyages on convicts sent to New South Wales, and thereby contributed to the government's abandonment of the project.

Dr. Morgan Price told how he classified convicts according to their ability to read and write but they were " as bad at the end of the voyage as in the first instance." Colonel George Arthur deplored the lack of discipline on transports and claimed convicts could be prepared " admirably " for their punishment while on board ship. If the surgeons gave religious instructions and taught them to " reflect," the prisoners would suffer the " full extent of the penalties of the law " when they arrived, for colonial officials would " have a mind then to work upon." [58]

Also appearing before the Select Committee on transportation, a Surgeon Galloway believed the convicts were " In worse Health " as a consequence of the voyage. Though the moral character of the convicts had " improved in many instances," good behaviour was often " put on to obtain indulgences " from the surgeon-superintendents. Surgeon Galloway's testimony before the Select Committee showed the evolution of treatment of the convicts on transports since Governor Phillip sailed from Portsmouth in 1787. Surgeons now had " *sole* power " of imprisonment and complete control over all convict arrangements. Galloway, like many other surgeons, divided his cargo into classes and chose convicts of " superior description " to teach the others. He conducted church services and established schools for boys besides administering to the health of the convicts. He seldom resorted to flogging though he did order whippings for two black men once — one for attempting to bite another convict's tongue out and another for " gouging " out the eyes of a fellow prisoner. Rather than corporal punishment he relied on solitary confinement as an inducement to good behaviour.[59]

Galloway submitted a copy of the formal instructions given to surgeon-superintendents in the last years of transportation and the directions were merely improvements over those begun in 1815. Surgeons were allowed one ton of baggage but had to sign an oath stating they did not land any article for sale in the colony. They were not to interfere with the navigation of the ship but had to give the crew medical assistance. They were to see

[58] *Ibid.*, 268-269, 289.

[59] *Ibid.*, 181-186.

that the master gave receipts for all packages deposited with him by the convicts. The doctors were to prevent prostitution and warn wives of convicts and free women who did not consider themselves subject to the surgeons' orders, that "bad conduct" would make the governor refuse them entrance to the colony. They checked on the rations, made daily inspections of convicts, treated the sick, and kept journals and accounts of all transactions. They enforced cleanliness and issued prescribed amounts of anti-scorbutic juices. By way of rehabilitating the convicts, surgeons established schools, read church services every Sunday and delivered sermons if there were no chaplains aboard. Lastly they supervised all corporal punishment in a "public manner." [60]

Though the Select Committee pointed out some of the deficiencies still existing in the transportation system, the methods and attitudes of governmental officials both in Britain and in New South Wales had changed since the first colonists had landed in 1787. Despite the vast improvements, surgeons protested against abuses in 1838 just as they did in 1788. When the transport *Lord Lynedoch* arrived in New South Wales in 1838 Governor George Gipps reported 19 deaths on board the ship. Twenty more died of scurvy shortly after landing. Of 330 convicts on the ship only 89 escaped disease. Echoing Governor Macquarie's protests of 25 years before, Gipps said 23 convicts had been invalided and many of those discharged from the hospital would "feel the effects of the disease for the rest of their lives." [61]

In 1839, the year before transportation to New South Wales ceased, Convict Francois Prieur gave details of life on a transport. He experienced many of the hardships and treatments that convicts had suffered since the government had first instituted the transportation system. Sentenced to be transported for his part in the rebellion of 1837 in Lower Canada, Prieur complained of the rations, of the dirty blankets and clothing issued to the men, and of the "terribly hard cushions and bunks." Six days after they left Canada, 59 out of 72 convicts on his side of the ship were seasick. The deck became "wet, slippery and stinking through the vomitings." The surgeon placed a tub near the water closets and six convicts worked constantly to clean up the "slop" on the "footpath to the tub." Sailing on a convict ship in 1839 was still an ugly event in the life of a prisoner.[62]

In 1840 transportation to New South Wales ended. Slowly, haltingly, the government had evolved a system of transporting convicts from the

[60] *Ibid.*, 19: appendix, 344-350.
[61] *HRA*, series I, 20: 57.
[62] Francois Xavier Prieur, *Notes of a Convict of 1838* (Sydney, 1949), p. 56-64.

prisons of England and Ireland to the open-air prison of New South Wales. In the 50 years from 1790 to 1840 the type of surgeon on prison ships changed from an indifferent, poorly-trained, and often barbarous individual to a well-qualified naval surgeon, operating under a systematic scheme of caring for convicts during the long voyage. Despite steady but moderate reform, the medical plight of the convicts remained much the same. The generally low level of medicine as a science and ignorance of disease causation contributed to the medical hardships of the prisoners. Yet doctors agreed that sanitation was necessary and thereby alleviated some of the convicts' suffering.

Medical care on emigrant ships and British warships was often as poor as treatment on convict ships. British authorities were reluctant to initiate the reforms advocated by James Lind, the father of nautical medicine, and emigrants, British seamen, and convicts suffered alike. Yet convicts sailing to New South Wales were the last group to receive attention.[68]

The greatest step in the transition from neglect to interest on the part of the government came at the close of the Napoleonic wars when Governor Macquarie forwarded William Redfern's comprehensive report on the evils existing on board transports. The advent of explicit instructions to doctors and the use of naval surgeons assured convicts better treatment. Improvements in transportation closed the distance between the mother country and the colony, and prisoners had less time to be exposed to disease in prison ships.

According to the medical concepts of sea doctors, shipboard diseases were caused by bad air, filth, and lack of fresh food. Most governors and medical reformers centered their attacks on those evils — with a certain degree of success.

[68] See R. S. Allison, *Sea Diseases, the Story of a Great Natural Experiment in Preventive Medicine in the Royal Navy* (London, 1943), p. 91, 106, 143, 168-187.

CRAVEN AND O'MEARA: MEDICAL BOSWELLS TO JEFFERSON DAVIS AND NAPOLEON BONAPARTE *

CHESTER D. BRADLEY AND MIRIAM D. BRADLEY

Napoleon Bonaparte had his Dr. O'Meara. Jefferson Davis had his Dr. Craven. Shortly after Napoleon threw himself on the mercy of the English nation in 1815, he had assigned to him as his personal physician, Barry O'Meara, a surgeon in the British Navy. When the defeated but still defiant Jefferson Davis was brought to Fort Monroe, Virginia, in 1865, he had assigned to him as his personal physician Dr. John Craven of the Union Army.

The French Emperor and the Confederate President were undoubtedly the two most important political prisoners of the 19th century. Each was made captive after a bitter and exsanguinating war. Each was feared and execrated as few leaders in history have ever been. The more vindictive of their foes hoped that their places of imprisonment would be their places of interment. In the case of Napoleon, their hopes were realized, for the short, stocky, rugged Corsican died after five years of captivity on the island of St. Helena. However, the tall, lean and sickly Jefferson Davis not only survived two years of prison life at Fort Monroe, but lived on to the ripe old age of eighty-one!

Both Dr. O'Meara and Dr. Craven were of a scholarly turn of mind, and they eagerly seized upon their opportunity to study the mental processes and personality traits of their famous prisoner-patients. They hoped to obtain what we of today would call the " inside story " of world-shaking events fresh from the lips of their chief perpetrators. Each doctor kept a diary in which he meticulously recorded not only the events of the imprisonment but his conversations with his patient. It was only natural that the distinguished captives should be glad to unburden themselves to such interested listeners. It was also only natural that before long a highly sympathetic relationship should grow up between each doctor and his patient. This, however, led to clashes with their superior officers and eventually both O'Meara and Craven were relieved from duty and sent home.

* Read at the twenty-fourth annual meeting of the American Association of the History of Medicine, Baltimore, May 4, 1951.

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Each physician on his return home published a book based on his diary. O'Meara's book, published in 1822, was entitled, *Napoleon in Exile; or a Voice from St. Helena.* Craven's book, published in 1866, was called, *The Prison Life of Jefferson Davis.*[1] O'Meara dedicated his book to Lady Holland, wife of a prominent Whig leader, who had sent books and fruit to the imprisoned Emperor. Craven dedicated his book to Hugh McCulloch, Secretary of the Treasury, who, he says, was the first Northern public man to visit Jefferson Davis in his cell at Fort Monroe. Both of these books had a tremendous sale and aroused great sympathy for both Napoleon and Jefferson Davis.

O'Meara's book ran through many editions in England as well as in the United States. Craven, who was a great lover of books, was undoubtedly familiar with the O'Meara book even before the Civil War. Therefore, when history called upon Dr. Craven to be to Jefferson Davis what Dr. O'Meara had been to Napoleon Bonaparte fifty years earlier, the American doctor was well prepared for his role. Quite likely Dr. Craven was inspired by O'Meara's example, for the title page of Craven's book bears the following quotation from O'Meara's book: " Had I died on the throne, enveloped in the dense atmosphere of power, I should to many have remained a problem. Now, misfortune will enable all to judge me without disguise."

Barry Edward O'Meara was born in Ireland in 1786. His father, Jeremiah O'Meara, was a member of the legal profession. A maternal uncle, Edmund Murphy, was rector of Tartarghan in County Armagh. O'Meara studied anatomy in Dublin and surgery in London. He joined the British Army in 1804 as assistant surgeon in the 62d Foot, serving in Sicily, Calabria and Egypt. It was probably in Sicily and Calabria that the physician learned Italian which was the language he was to use later in conversing with Napoleon. In 1807 O'Meara was dismissed from the British Army for acting as a second in a duel. (The authorities were

[1] The Craven book, like that of O'Meara, has been attacked for its authenticity (C. C. W.: The Prison Life of Jefferson Davis. *Current Literature*, vol. 38, pp. 500-502, June 1905). One of the chief criticisms has been the description of the shackling of Davis. However, Craven states explicitly in his book that he himself did not witness this event, but depended on the accounts of those who did. The shackling occurred on May 23, 1865, whereas Dr. Craven was not assigned to attend Jefferson Davis until the next day, May 24. At this point Craven says, " I now reach the commencement of my personal relations with the prisoner, and for all that follows am willing to be held responsible." From here on the main events in Craven's book can be corroborated step by step with startling accuracy in the Official Records of the Union and Confederate Armies, Series II, vol. VIII, which was published 33 years after Craven's book.

FIG. 1

Dr. Barry E. O'Meara

(From *Century Magazine*, February 1900)

making a determined effort to stamp this custom out of the service.) The Irish doctor then joined the British Navy where he served on a number of vessels for the next seven years. He was surgeon on HMS *Bellerophon* in 1815 when the defeated Napoleon came on board at Rochefort. There O'Meara saw for the first time the illustrious military genius with whose name his own was to be linked in history.

O'Meara's American counterpart, John Joseph Craven, was born in Newark, New Jersey, in 1822. Unlike O'Meara, Craven began life in humble circumstances. Apprenticed to a carpenter as soon as he was old enough to work, the young man acquired his education chiefly through reading and observation. His interest in science was aroused while he was superintendent of maintenance and repairs in a chemical factory. When the first telegraph line from Philadelphia to New York City was being built across New Jersey, Craven took a position as superintendent of construction with the Magnetic Telegraph Company. In 1847 John J. Craven devised a successful underwater cable, using gutta percha as the insulating substance, but he was unable to get a patent on it.[2] The disappointed young inventor quit the telegraph company and sailed around the Horn in 1849 to seek gold in California.

Apparently Craven did not find much gold in California, for in 1851 he was back in Newark where he settled down to the more serious business of studying medicine. He placed himself under the preceptorship of Dr. Gabriel Grant of Newark and it is stated that he also attended lectures at the College of Physicians and Surgeons in New York City. When the Civil War broke out, Craven, who was a successful practitioner in Newark, joined the Union Army as a surgeon. He took part in various expeditions along the South Atlantic coast and was cited for his conduct during the assault on Fort Pulaski, Georgia. In 1865 Dr. Craven was promoted to a high position in the Medical Department of the Union Army and was transferred to Fort Monroe, Virginia, where he also filled the position of Chief Medical Officer. Early on the morning of May 24, 1865, Dr. Craven was summoned to the office of General Nelson A. Miles, commanding at Fort Monroe, who informed the New Jersey doctor that he was henceforth responsible for the health of "State-prisoner Davis."

[2] The transatlantic cables of 1858, 1865, and 1866 were all insulated with gutta percha (Bright, Charles: *Submarine Telegraphs*. London, Crosby Lockwood & Son, 1898). In a speech made at the cable celebration of 1858 in Philadelphia, it was asserted: "John J. Craven of Newark, New Jersey, made and laid the first practical substantial, available submarine telegraph; and let his name stand out in its proper place." (*Biographical Encyclopaedia of New Jersey*, see bibliography at end of this article).

FIG. 2

Dr. John J. Craven visiting Jefferson Davis in prison

(From John J. Craven, *Prison Life of Jefferson Davis*, New York, 1866)

Returning to Napoleon's physician, we find that Barry O'Meara, unlike Craven, had some choice in the matter of his assignment. When Napoleon's French physician refused to accompany him to St. Helena, the Emperor requested that O'Meara be assigned as his medical attendant. The British authorities, very pleased that Napoleon should want a British Navy doctor, urged O'Meara to accept, which he finally did. Thus it came about that Dr. Barry O'Meara boarded HMS *Northumberland* to accompany Napoleon and his little band of devoted companions to the tiny island far out in the South Atlantic Ocean.

Napoleon was a master in the art of manipulating men. It is highly probable that he chose O'Meara mainly because he was an Irishman. France had long intrigued with Irish rebels, thousands of whom had sought refuge on her soil and had become staunch French citizens. The canny Bonaparte doubtless reasoned that since he must have an enemy physician better he should be an Irishman. O'Meara tells in his book that Napoleon "addressed me on the poop and asked me if I were the chirurgien major? I replied in the affirmative in the Italian language. He then asked in the same language what country I was a native of. I replied of Ireland. 'Where did you study your profession?' 'In Dublin and London.' 'Which of the two was the best school of physic?' I replied that I thought Dublin the best school of anatomy and London of surgery. 'Oh,' said he smiling, 'you say Dublin is the best school of anatomy because you are an Irishman.' I answered that I begged pardon, that I had said so because it was true; as in Dublin the subjects for dissection were to be procured at a fourth of the price paid for them in London, and the professors were equally good . . . He . . . ever afterwards noticed me when walking on deck and occasionally called me to interpret or explain."

This little incident between Napoleon and O'Meara suggests another parallel between Napoleon and Jefferson Davis. *Harper's Weekly*, June 10, 1865, reported as follows: "He (Jefferson Davis) refused to see one (a physician) from Connecticut, but was more lenient toward one from New Jersey." Could it be that the shrewd Mississippian reasoned that since he must have a Northern doctor he had better be a New Jerseyite than a Connecticut Yankee?

Both Napoleon and Davis, warmly seconded by their physicians, insisted that their places of confinement were unhealthy and that unless they were moved elsewhere they would not long survive. O'Meara contended that hepatitis was endemic at St. Helena because of its climate and he was convinced that Napoleon had acquired this disease. Although Napoleon

FIG. 3

Dr. John J. Craven

Copied from photograph he gave Mrs. Jefferson Davis

(Courtesy, Confederate Museum, Richmond, Va.)

died on St. Helena, his death was not related to his environment. The autopsy showed that Napoleon Bonaparte died of the same disease that killed his father, cancer of the stomach. Dr. Craven was finally successful in getting Jefferson Davis moved out of the damp casemate in the wall of the fort into Carroll Hall, a two-story building which used to stand in the northwest bastion of Fort Monroe. The Confederate President spent the balance of his imprisonment in this building until he was released in 1867 on a bail bond for $100,000 signed by Horace Greeley and others. He died at New Orleans, Louisiana, of bronchopneumonia in 1889.

Both O'Meara and Craven took their roles of medical Boswells most seriously, recording in their diaries not only the details of their patients' health but giving extended reports of their utterances. Said Dr. O'Meara, "I spoke as little and listened as attentively as I could . . . immediately on retiring from Napoleon's presence, I hurried to my chamber and carefully committed to paper the topics of conversation, with so far as I could, the exact words used."

The physician describes Napoleon's acrimonious bickerings with Sir Hudson Lowe. He sets down the Emperor's reminiscences of men and events. He tells of Napoleon's vain longing for the dead Josephine. He reports Bonaparte's ideas about a great variety of subjects such as predestination, the Irish question, the machine age, medicine, free-masonry, midwifery, and religious toleration. Incidentally, Napoleon has quite a bit to say about the common people whom he likes to refer to affectionately as the "canaille" (rabble).

Dr. Craven at Fort Monroe felt that it was very important for him to record all the opinions of Jefferson Davis, because almost a million lives had been sacrificed for and against the cause for which Davis stood. The New Jersey physician writes: "It has been my conscientious effort to report him as he was, neither inventing any new sentiments to put in his mouth, or suppressing any material views on public questions which appeared in my note-book. In many of the important political conversations, let me add, the words are as nearly as possible the exact language used by Mr. Davis, my memoranda upon such matters having been made as full as possible." [3]

Craven reports the prisoner's views on a large variety of topics, such as the future of the South and the Negroes, aristocracy, science, the perennial

[3] Three original pages of Dr. Craven's Fort Monroe diary in his own handwriting, dated June 9 (1865) and "the 24th," are among some papers in an old letter file recently (March 1952) turned over to me by Dr. Craven's grandson. The doctor's vast mass of papers was unfortunately dispersed and lost many years ago. (Added in the proof.)

Irish question, medicine, and woman's place in life. Jefferson Davis converses frequently on the habits of animals in which he seems to be deeply interested and exceptionally well versed, such as hunting dogs. The captive Confederate President tries to domesticate a friendly mouse in his cell with bread crumbs and laments to Craven that this mouse is the only living thing it is now in his power to benefit.

The doctor's diary came to an abrupt close on November 10, 1865, when General Miles ordered him to have no further conversation with Jefferson Davis except on "strictly professional matters." This crisis was provoked by what may be called the *overcoat incident*. With the approach of chilly weather the doctor ventured to order an overcoat made by Davis' former tailor in Washington, D. C., who of course had the Confederate leader's measurements. Dr. Craven did this entirely on his own authority without consulting headquarters and without going through military channels. Perhaps he merely wished to cut the red tape!

Certain Northern newspapers which got wind of this transaction immediately raised a great outcry, this being the first inkling General Miles had of it. Although Dr. Craven resented General Miles' ban on further social conversations with his patent, he had to comply, for the prisoner was under constant close surveillance in his room at Carroll Hall. On December 25, 1865, Craven was removed from attendance on Davis and one month later he was mustered out of the service. The Confederate President gave the doctor a meerschaum pipe which he had smoked all through his presidency, "its acceptance insisted upon as the only thing he had left to offer," writes Dr. Craven.

Going back to Dr. O'Meara on the island of St. Helena, we find that he soon became drawn into the bitter squabbling between Napoleon and Sir Hudson Lowe, the British Governor, who was responsible for the safe keeping of the prisoner. In October 1817, Lowe ordered O'Meara to hold no conversations with Napoleon except on medical matters. However, O'Meara with Irish pertinacity, disregarded the Governor's order and continued both his conversations and his diary until removed from his post and sent back to England in July 1818. O'Meara was able to evade complete supervision of his relationship with Napoleon because the sentries guarding Bonaparte were not allowed in his house. They must walk their posts outside the garden gate. O'Meara not only continued his diary but also made a copy which he smuggled off the island to London in case the original should be confiscated.

Before he left St. Helena, the irrepressible O'Meara, in direct defiance

of a written order from Sir Hudson Lowe, went to say goodbye to Napoleon. The Emperor gave the doctor a small statue of himself and a snuffbox. In a dramatic scene the prisoner charged O'Meara with many messages for friends and relatives in Europe and then, shaking the physician by the hand and embracing him, Napoleon said, " Adieu, O'Meara, nous ne nous reverrons jamais encore. Soyez heureux."[4]

Back in London, O'Meara continued his feud with Sir Hudson Lowe by publishing several pamphlets which caused Napoleon's jailer to wring his hands in impotent rage. In his book about Napoleon, published in 1822, O'Meara pilloried Lowe so effectively that the Governor's name became generic for a hateful jailer. O'Meara's book stirred the imagination of many liberals and intellectuals in England who tended to glorify the memory of Napoleon. O'Meara became something of a hero. He was even eulogized by Lord Byron in the " Age of Bronze " (1823) in these words: " And the stiff surgeon, who maintain'd his cause, Hath lost his place, and gain'd the world's applause." The whole third stanza of Byron's poem seems to be based on O'Meara's book, *Napoleon in Exile; or a Voice from St. Helena.*

O'Meara spent the rest of his life in London. It is quite likely that the proceeds from the sale of his book made him independent or nearly so. When the book was first published, police had to keep back the crowds around the publisher's office. O'Meara seems to have had a taste for controversy, for we find him interesting himself in the dispute between Queen Caroline and her dissolute husband, George IV. The doctor helped collect evidence for use in the Queen's defense when her husband attempted to divorce her. O'Meara also became a follower of Daniel O'Connell, the Great Liberator, thus giving expression to his true Irish feelings. Although the O'Mearas were Protestants they were evidently of those Irish who had found it expedient to adopt the Protestant religion in order to have access to higher education and the learned professions in the days before Catholic Emancipation in Ireland. Barry O'Meara died in London in 1836 of " erysipelas in the head."

Dr. Craven, after being mustered out of the service at Fort Monroe, January 27, 1866, returned to Newark, New Jersey, where he served as Postmaster for six months. That same year of 1866 he also published his book, *The Prison Life of Jefferson Davis,* which created a wide sensation. However, Craven did not attack his former commanding officer, as did O'Meara. Throughout his entire book, he speaks of General Nelson A.

[4] Farewell, O'Meara, we shall never see each other again. May you be happy."

Miles with studied respect. In one sentence only is there a possible hint of sarcasm. Describing the leg irons briefly used on Jefferson Davis, Dr. Craven says, " I believe they are now in the possession of Major-General Miles, and will form an interesting relic."

Dr. Craven apparently had very little inclination for political controversy, for in 1867 he moved to Jersey City where he resumed the practice of medicine. Somewhere around 1871 he was consulted, because of his knowledge of chemistry and sanitation, by a large meat-packing concern which had been declared a public nuisance by the courts. The versatile Craven rescued his clients from their predicament by inventing processes which converted the slaughter house waste into salable by-products. The inventor in John J. Craven was reawakened and in 1876 he took out a patent on a refrigerator chamber for installation on railroad cars and ships to permit transportation of fresh meat for long distances. The income from this invention made Craven independently wealthy. In 1881 he retired from medical practice and went to live in a fine house in Patchogue, Long Island, New York. He took a leading role in the cultural life of the community and when he died in 1893 of a paralytic stroke he was deeply mourned.

Both Craven and O'Meara, as medical officers assigned to care for enemy leaders, had a difficult task. They had to maintain a fine balance between their obligations as physicians on the one hand and their duties as officers on the other. Each had to win the confidence of his prisoner-patient yet attempt to stay on good terms with his commanding officer. Neither Craven nor O'Meara was able to maintain this balance and both gradually became the partisans of their patients against their commanding officers. To this outcome they were predisposed by the fact that the doctor-patient relationship is conducive to the development of sympathy. Furthermore, they could not help being influenced by the magnetism of their patients. Both Napoleon and Jefferson Davis were brilliant, strong-willed men surrounded by the romantic aura of departed glory. Moreover, they were men of great personal charm. Napoleon could be hail-fellow, well-met with any man, woman or child. Jefferson Davis although usually serious and aloof could be most courtly and ingratiating when he chose.

In the preface to his book of 1822, Barry O'Meara goes to considerable pains to explain his attitude toward Napoleon. The Irishman says, " Humanity required of me a consideration for my patient. The uniform I wore imperiously commanded that I should not soil it by indignities to a captive, and my country's character pledged me to hold sacred the mis-

fortunes of the fallen." Without knowing it, O'Meara was also speaking for his future counterpart of the year 1865, John Joseph Craven.

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SIR WILLIAM OSLER'S OBSTETRICAL INTERESTS *

M. PIERCE RUCKER

Ten years ago I wrote an article entitled "Benjamin Rush, Obstetrician." In due course I sent a reprint to Dr. W. W. Francis and received a playful reply to the effect that if I wanted to write on "Willie Osler, Midwife" he could send me several good leads. That idea lay dormant in the back of my head until 1949. Since nothing was said about Sir William Osler's obstetrical interests in the numerous articles commemorating the one hundredth anniversary of his birth, it seemed that I should make use of Dr. Francis' leads.

Dr. Francis described Sir William's only obstetrical "case" as follows: "His midwifery was incidental, when not imaginary. I remember his arriving home in Baltimore at breakfast time, frozen, after a wild night on the train, on which he had been the only doctor, and had had to deliver an unexpecting primipara and even part with his woollen undervest to clothe the baby. It cost him a week in bed with bronchitis."

When Dr. Osler was on a vacation in Northwestern Canada in 1886 he heard of a birth in a railway closet while the train was in motion. The birth had taken place just two days previously, and the train conductor obligingly stopped the train at the station, to which the mother was taken. Dr. Osler interviewed the mother, inspected the bruises on the baby, who seemed no worse from the experience, and got affidavits [1] from the conductor and others who were concerned with the case. He sent the account to Gould, the editor of *Anomalies and Curiosities of Medicine*, with the assurance that he could vouch for the truth and had affidavits to prove it. Knowing Osler's fondness for practical jokes Gould hinted that the baby was born, not in the water closet of the train, but in the brain of W. O. with E. Y. Davis as midwife, but if he would send the affidavits he would publish the account. Unfortunately Dr. Osler was unable to find the affidavits, consequently all that Gould published was, "There was recently a rumor, probably a newspaper fabrication, that a woman while at stool in a railway car gave birth to child which was found alive on the track

* Read at the twenty-fourth annual meeting of the American Association of the History of Medicine, Baltimore, May 4, 1951.

[1] George Blumer, who was resident from 1893 to 1896, says that he saw the affidavits in a drawer of the big table that used to be in the hospital library. Dr. W. W. Francis writes me that the present whereabouts of the affidavits is unknown.

afterward." A full report was published in the *Canada Medical and Surgical Journal* and was abstracted in the *Medical Record,* and *New York Medical Journal.*

The wide publicity of the Baby-on-the-track case has given the impression that Sir William was interested only in the bizarre aspects of obstetrics. That such is not the case is evident upon a review of his bibliography or of the *Bibliotheca Osleriana.*

The *Bibliotheca Osleriana* has 109 items on midwifery. More significant than the number is the distribution of these items. Forty-three are in the "Bibliotheca Prima" including works of the early Greeks as well as Florence Nightingale's Introductory notes on Lying-in Institutions. He had a wonderful collection on anesthesia. One of his last acquisitions was the *Boston Medical and Surgical Journal,* vol. 35 (Aug.-Jan.), Boston 1846-7. The *Bibliotheca Osleriana* states:

> When this long-looked-for volume arrived in Dec. 1919, towards the end of his last illness, Sir. Wm. Osler asked that the following note be inscribed in it: All things come to him who waits—but it was a pretty close shave this time!
>
> Start with the documents that magnetized into life an ancient practice — these pamphlets of Morton's, Bigelow's paper, Warren's paper, and vol. XXXV of the Boston Medical and Surgical Journal. Put these together as the blastoderm from which the enormous literature has developed.

In Dutertre's *Des Anesthésiques dans l'Antiquité* Osler had inserted notes that take up almost three columns in the catalogue. An interesting item is the corrected galley proof of Sir J. Y. Simpson's (2nd) letter to Dr. Jacob Bigelow of Boston, April, 1870, with corrections and additions in the handwriting of Sir James and his son, Sir Walter. "The corrections are possibly the last scrapes of his (Sir James's) pen." Besides the works on obstetric anesthesia, there are seven on "twilight sleep."

In the "Bibliotheca Secunda" puerperal fever finds a prominent place with six works by Holmes and four by or about Semmelweis and Gordon's *Treatise on the Epidemic Puerperal Fever of Aberdeen.* Regarding Semmelweis' *Gesammelte Werke* there is this note:

> The contents include the first papers, 1847-9, on Semmelweis's discovery, by Hebra, C. Haller, Skoda, and C. H. F. Routh (a trl. of his 'Causes of the endemic puerperal fever of Vienna,' Med.-Chir. Trans., Lond., 1849, vol. 32).
>
> Semmelweis published nothing on the subject until 1858 (in Hungarian); his great work is 'Die Aetiologie, der Begriff und die Prophylaxis des Kindbettfiebers,' Pest etc., 1861.

There are many editions of Rösslin and extensive notes on this well known work. William Hunter is well represented and Sir William has

added many notes upon Hunter's character and accomplishments. Of the two brothers, John and William, Osler considered William the greater in many ways. He called him Glasgow's most distinguished medical graduate. The rest of the 57 obstetrical works in the " Bibliotheca Secunda " cover a wide range, including maternal impressions, artificial insemination, lithopedium, baptism by injection, indecency of men-midwifery, the uncertainty of signs of murder of bastard children, the opening of the pubic bones during labor, and Mary Toft, the rabbit breeder. While his collection about this much discussed case is unusually complete, Osler notes that the case " is of interest only as one of the most celebrated instances of hysterical deception."

" Bibliotheca Litteraria " has 10 items of obstetric implications. Among these Rabelais and Sterne are prominent. One item is a single sheet in verse entitled *A Hue and Cry after a Man-Midwife, who has Lately Deliver'd the Land-Bank of their Money*. London, 1699. It was published anonymously, but is attributed to Edward Ward (1667-1731) and is a satire on Dr. Chamberlen of obstetrical forceps fame.

Among the 18 items in " Bibliotheca Historica " is a reprint of an Arabic MS. which contains a picture of a cesarean section that is said to be the earliest picture of that operation. There is also Siebold's *Versuch einer Geschichte der Geburtshülfe*, Doran's seven essays on obstetrical forceps, Aveling's *English Midwives* and Witkowski's five treatises, history of obstetrics, obstetrics at court, in literature and art, historic anecdotes and curiosities, and celebrated midwives. Of the five items in " Bibliotheca Biographica," only one is of a man. There is one work (Engelmann) in the " Bibliotheca Bibliographica " and there are two obstetrical works in the " Addenda."

The three obstetrical items in the Manuscript section are of especial interest. One is a " License granted by the lords of the manor of Bishop-Wilton to Helena Wood, widow, to practice as a midwife, dated York, 26 Feb., 1696." The second is William Shippen's " Lectures on Midwifery " by William Darlington, Student of Medicine, 1802-3. The third is "' Professional notes among the Indian Tribes about Gt. Slave Lake, N. W. T., by Egerton Y. Davis, M. D., late U. S. Army Surgeon '; 1882." It is written in Dr. Osler's handwriting throughout. " The last leaf is endorsed: ' Prepared as a joke on Molson [the new editor] and partially printed for the C. M. & S. Journal, May 1882.' Suppressed. This MS. is preceded by a later one (3 leaves) purporting to give the *true* story of ' Egerton Yorrick Davis.' It mentions his writings (in-

cluding the unsuppressed letter to the Medical News, Phila., 1884), his death in Lachine Rapids, and his collections at the Guildhall, Caughnawaga!" This is probably the most authoritative biographical note on Sir William's *Alter Ego*.

Osler's own writings on obstetrical subjects consist chiefly of autopsy reports, discussions in medical meetings, news notes, signed and unsigned editorials, a clinical lecture on eclampsia and two papers on anemia. The earliest of Osler's obstetrical writings was an abstract of an article from Virchow's *Archiv*, Bd. lxii, Hft. 1, 1875. The German author, Cohnstein, maintained that the intrauterine temperature, when the uterus contained a live baby, was higher than the vaginal temperature. If the fetus is dead, the temperature is the same within the uterus as it is within the vagina. This was shown to be true in the guinea pig by the use of a thermopile. In his clinical work he used a thermometer. In using this test to diagnose a dead fetus one must take into consideration the possibility of a post-mortem elevation of temperature and repeat the test several hours later. There are other conditions such as endometritis that may cause an elevation of intrauterine temperature. The test is said to have been confirmed by Fehling of Leipzig. In 18 cases the test held good with two exceptions. In one of these the elevation of temperature with the dead fetus depended upon a febrile condition of the patient which had set in before or during labor. Cohnstein stated that it should be recognized that the introduction of a thermometer even a few millimeters above the internal os may prematurely interrupt the pregnancy. "These cases, however, always form the exception, and do not outweigh the advantage of the thermometric investigation, if by the uncertainty of the ordinary symptoms of pregnancy a sure diagnosis seems necessary in the interests of the patient."

Was this abstract evidence of Osler's interest in obstetrics or in diagnosis? I do not believe that anyone not interested in obstetrics would have bothered about preparing a lengthy abstract of such an article.

In the *Canada Medical Record* (1878) there is a report of a fatal case of extra-uterine pregnancy by Richard A. Kennedy, Prof. of Midwifery, Bishop's University, George Ross, Prof. of Medicine, McGill, and William Osler, Prof. of Physiology, McGill; and in the same volume (1879) there is a case report of postpartum endometritis and thrombosis of the right ovarian vein. The thrombus extended up to and into the vena cava. In the same year Osler described an anencephalic monster. In 1895, he reported a case of cerebral hemorrhage in a fetus. The mother, pregnant for 6 months, had stigmata of congenital syphilis. She also had typhoid

fever with relapse, and dyspnoea necessitating a tracheotomy. At autopsy a fetus, 32 cm. long, was found within the uterus. It had general edema, fluid in the serous cavities, and extensive hemorrhage into the left centrum ovale and all the ventricles of the brain. These case reports with others such as " pyometra " scattered through the Montreal General Hospital pathological reports show more than just a pathologist's interest. They emphasize features that make them interesting to an obstetrician as well.

His clinical lecture on eclampsia (1883) is based on two cases, one of which recovered and the other came to autopsy. He looked upon eclampsia as a complication of acute nephritis, but he recognized that nephritis of pregnancy was different from ordinary nephritis. The onset is insidious, with no fever nor pains in the loins. There is swelling of the feet and perhaps a little puffiness of the eyelids. The urine is diminished in quantity and rarely contains blood. The amount of albumen is very large and there are hyaline and epithelial casts. Twenty-five per cent have convulsions. He gives an accurate description of convulsion. The second case was a fulminating one. The patient had gone to bed apparently well, woke up in convulsions, and was dead in three hours. There was a hemorrhage in the left ventricle and in the pons and medulla. The convoluted tubules of the kidneys showed granular degeneration. He discusses the etiology of nephritis of pregnancy and says that no satisfactory explanation has been advanced. As to frequency, there had been seven cases of eclampsia in 995 deliveries at the Lying-in Hospital in Montreal in eight years. All seven mothers recovered, but since then there had been two deaths. The usual mortality, he says, is 25 to 30 per cent. When the patient is profoundly comatose after a convulsion, it is likely that she has a brain hemorrhage. If the patient recovers from her convulsions the renal disease may subside after delivery. It is not often that it passes into the chronic form. Treatment consists principally of the administration of morphine (Battley's sedative solution). Chloral hydrate is highly thought of and bleeding is frequently resorted to with good effect. Special kidney treatment consists of cupping and hot poultices to the loins, diuretics, and steam or vapour baths.

His major contribution to obstetrical literature was his two papers on the anemias of pregnancy, " Puerperal anemia and its treatment with arsenic " and " Observations on the severe anemias of pregnancy and postpartum state." He gives Walter Channing the credit of being the first to describe pernicious anemia, his publication, the Anhaemias of Pregnancy, in the *New England Quarterly Journal* (1842) antedates Addison's by one year. Osler classifies the anemias of the puerperal state as follows:

I Anemia of post-partum hemorrhage
II Severe anemia of pregnancy
III Post-partum anemia
IV Acute anemia of post-partum sepsis

Under the head of "Anemia of post-partum hemorrhage" he gives a wonderful clinical picture of a fatal case. The patient was a neighbor who had been left in good condition by her accoucheur, but apparently too soon, for she died of hemorrhage in his absence. Such a history is not uncommon and characteristically, Osler refers to similar cases in the lay literature.

The severe pernicious-like anemias may occur during pregnancy but are most frequently seen in the post-partum state. They have the typical blood picture of pernicious anemia. He stresses repeated small hemorrhages such as occur with hemorrhoids, plus infection with the staphylococcus and an unknown toxic factor of pregnancy as etiological factors. The chief clinical difference between the puerperal pernicious anemias and those without a pregnancy background is that some of the former recover. He was a strong advocate of arsenic in their treatment, advising 5 minims of Fowler's solution three times a day and gradually increasing the dose to 20 to 25 minims. He recognized the inadequacy of treatment with iron.

In the 32 years since Osler wrote on the anemias of pregnancy we have learned scarcely anything additional except the value of a high protein diet.

When he was in Philadelphia Osler gave a series of clinical lectures on cerebral palsies of children which were published in the *Medical News* of 1888. In discussing spastic paraplegias he stressed the role that asphyxia and convulsions at birth played in the history of these cases, something that practicing obstetricians were, seemingly, not cognizant of.

In the Philadelphia period also belongs an editorial signed E. Y. D. on an extra-uterine pregnancy being changed to an intra-uterine one by electricity. This was occasioned by several reports of such occurrences by well known obstetricians (Garrigues, Mundé and Stabler). In this short editorial Osler demonstrated a more accurate knowledge of the physiology and endocrinology of pregnancy than the practicing obstetricians. He knew that the uterus enlarged as much when the fetus was extra-uterine as it ordinarily did in the early months of a normal pregnancy.

There is also an editorial of the same period (1887) criticising a judge for admitting as evidence birth marks on the neck of the baby to prove that the mother had been assaulted a month before the baby was born. The woman claimed that she had been choked by her assailant and that the marks on the baby's neck were confirmatory of the story. One would

surmise from the context that this evidence had much to do with the decision of the court.

Finally, Sir William was interested in many obstetricians of note: Trotula, William Hunter, John Burton, and Jean Astruc. He was fond of calling the "hen-medics" at Hopkins "Trotulas." I have already referred to his eulogistic comments on William Hunter. One of his delightful sketches in "Men and Books" of the *Canadian Medical Association Journal* is about Burton. In the same department he wrote a sketch on Jean Astruc and higher criticism, and when Sir Alexander Simpson discussed Jean Astruc before the Section of History of Medicine of the Royal Society, Osler was present and entered into the discussion defending Astruc against the calumny of Prof. Howard Osgood.

Osler and Astruc had many things in common besides wide learning and profound knowledge of the classics. Astruc was a pioneer in Biblical criticism. Osler did not criticise the Bible but he knew it and constantly referred to it. Astruc was an authority on syphilis and wrote a history of that disease. Osler's knowledge of syphilis was profound. He often said that if he had to confine his practice to one disease he would choose lues, for lues was such a mimic that he would have to understand every other disease in order to know lues. Astruc wrote a widely used treatise on obstetrics, in the preface of which he confessed that he had never delivered a woman in labor. Osler could have written an acceptable text book on obstetrics had there been any need of it in his day.

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ADDENDUM

W. W. FRANCIS*

Thanks to a note by Cushing, another sequel to the Baby-on-the-track has come to light since Dr. Rucker wrote his paper. It was published under "Notes and Comments" in the *Montreal Medical Journal,* vol. 17, pp. 557-8 (January) 1889, but somehow escaped the wide net of Maude Abbott's *Classified and Annotated Bibliography* of Osler, 2nd edition, 1939. It reads:

* Osler Library, McGill University.

For the following, I blame that case of railroad delivery which has evidently given me a most fictitious reputation. A few days ago I received an urgent summons to come at once to an address at the northern part of the town. On arrival I found my *confrère* looking very tired and distressed after an anxious night with a primipara. He greeted me with the information that one child had been born but that he did not know what to do about the second, as he believed there was an hour-glass contraction of the uterus. I assured him that our course of action was clear; we sent at once for an obstetrician. I had difficulty in convincing him that I was not a professor of the art, but he persisted that my reputation was associated in some way with obstetrics, and brought up that north-west case! What I have suffered on account of that baby! To be jeered at by the French Journals, to be called by the editor of the *Medical Record* a narrator of funny stories, to be referred to by my friends as Munchausen—these things have been hard to bear, but on the strength of that case to develop a consulting practice in obstetrics, is indeed a warning. Hereafter I shall stick to my last.

[sgd.] William Osler

In *International Clinics,* 40th series, vol. 3, p. 296, H. W. Cattell reprinted from an unidentified "medical journal" what purports to be an after-dinner speech by Osler telling about a struggle with an earlier primipara, this time out in the country and only one week after his graduation. He is quoted as having had "a sad time, an awfully sad time; but oh, the woman had a worse time." Cattell's source has not been found and the story may well be apocryphal.

From India, where miracles do not yet require affidavits, a Baby-on-the-track case which puts Osler's in the shade was reported in the *British Medical Journal,* 1933, i, p. 1020, under the heading, "Birth at 20 m.p.h." Here the baby was found on the line without a bruise, though "the cord had been cut and ligatured (!) by the wheel." The railway inspector's report ended with the important comment, "No damage to the permanent way"!

In my student days in Osler's happy house, whenever my punctuality failed to measure up to his exacting standard, he had a characteristic and obstetrical way of admonishing me, "Never mind, Bill, you'll get there for the afterbirth"!

A FURTHER NOTE ON JOHN HUNTER AND ANEURISM

LLOYD G. STEVENSON *

In a previous communication [1] the present writer reviewed the well-known story of John Hunter's experimental ligation of one of the external carotid arteries of a stag, an experiment commonly regarded as a necessary preliminary to the introduction of the Hunterian operation for aneurism. In this paper it was suggested that the story passed from Hunter to his assistant William Bell and by way of Bell's successor, William Clift, to the latter's son-in-law, Richard Owen, who first made it public in 1879, when arguing the case for vivisection. This account requires to be corrected in one particular. Owen related the story briefly in 1874 in the chapter which he contributed to Tom Taylor's *Leicester Square*.[2] Rather we should say that he referred to it, for he did not actually state that such an experiment had been performed; all he said was that "Hunter, in the course of observations and experiments on the growth and shedding of the horns of deer had noted the capacity or property of arteries to enlarge as well as contract permanently, or for a long period, according to what he termed the 'stimulus of necessity.'" This sentence, which falls short of an explicit account of what Hunter actually did, remains as yet the earliest reference to the matter I have found. Unlike the detailed version of 1879, it has no specific link with the dispute over vivisection, although at the beginning of the same paper Owen cites Hunter's authority to condemn "the abuse of vivisection," i. e. the use of animal experiments for teaching purposes rather than for research,[3] thus defending, by indirection, the phy-

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[1] Lloyd G. Stevenson, "The Stag of Richmond Park: A Note on John Hunter's Most Famous Animal Experiment," *Bulletin of the History of Medicine*, vol. XXII, 1948, pp. 467-475.

[2] Richard Owen, "Sketch of Hunter's Scientific Character and Works," Tom Taylor, *Leicester Square; Its Associations and Its Worthies*, London, 1874, pp. 420-433; the reference to the horns of deer is on p. 431.

[3] *Ibid.*, pp. 421-422. It is no reflection on the perfect sincerity of the many scientists who maintained this view to point out that in the eighteen-seventies it was politic to stress the *limitation* of animal experiments. Vivisection was a "hot" issue during that decade; *cf., e. g.*, Leonard Huxley, *Life and Letters of Thomas Henry Huxley*, London, 1900, vol. I, pp. 427 ff.

siologist's right to experiment on animals for the sake of gaining new knowledge.

It was pointed out in my first paper that Hunter, Everard Home, and the contemporaries and immediate successors of the Hunterian group are silent one and all about the experimental ligation now so famous. It was also indicated that a rationale for the new operation is clearly traceable without reference to the experiment on the stag. This has been true, however, only since the publication of Hunter's *Works* in 1835. In 1818 Sir David Dundas regretted that the origin of the operation was unknown.[4] David Tait, writing in 1826, offered this explanation: "John Hunter, from reflecting on the hemorrhage proceeding from the vessel below the sac, after an operation in 1779, where Mr. Broomfield [i. e. William Bromfield (1713-1792)] had, 'for security,' tied the crural artery three or four inches above the aneurismal sac, had probably the first glimpse at the great improvement of tying, in cases of aneurysm, the artery nearer the heart, and at a distant part from the disease." [5] This is difficult to reconcile with Hunter's account of the matter, or with the relevant passage in Bromfield's *Observations*.[6] In any case the essential point regarding the capacity of the collateral circulation, which Bromfield indicates as Hunter's starting point, had long been decided by Hunter on the basis of post-mortem findings.[7]

[4] Stevenson, *loc. cit.*, p. 471.

[5] David Tait, "Femoral aneurism on both sides in the same person," *Edin. Med. and Surg. J. 26* (1826) pp. 92-107. For this quotation I am indebted to Mr. John L. Thornton, Librarian, St. Bartholomew's Hospital Medical College.

[6] William Bromfield, *Chirurgical Observations and Cases*, London, 1773, vol. I, pp. 305-306. This, of course, antedates the incident mentioned by Tait, but Hunter's comment on the passage is subsequent to his innovation in the operative technique (1785). Bromfield condemns the operation, partly because of a failure he had observed when the artery was secured at a higher level after hemorrhage following a classical operation. He does not name Hunter, but the latter identified himself as the operator. See Hunter's *Works* (ed. Palmer) vol. I, pp. 547, 551. Hunter says that "this is the very case from which I have formed favourable ideas of the success of future operations of a similar nature," and details of the case are given by Hunter rather than Bromfield. *Cf.* G. C. Peachey, "William Bromfield, 1713-1792," *Proceedings of the Royal Society of Medicine, 8* (1915) Pt. II, Section of the History of Medicine, pp. 103-126. This paper includes a review (pp. 117-118) of Bromfield's opinions on aneurism, and defends him against the charge of want of candor in commenting adversely on Hunter's early failure in tying the femoral; but Peachey was apparently unaware of Tait's story.

[7] Bromfield, *loc. cit.*, says that "the injecting of parts in dead bodies having shown that in particular subjects the branches sent off have now and then formed anastomoses with other branches given off lower down, has led to very extravagant notions of the smaller branches being always able to carry on the circulation; and an extravagant proposition has been suggested by some people to tie up the principal trunk of an artery in the

G. J. Guthrie, who thought Hunter was led to propose and practise the new operation "from considering the manner in which spontaneous cure of external aneurisms was effected," nevertheless felt that "the merit of it . . . does not lie in the operative process, but in the principles on which it is founded," principles made clear by experimentation. The experiments cited are those performed by Hunter and Home in dissecting off the outer and middle coats of arteries, as described by Home; no ligation is mentioned.[8] This was written in 1830; it was quoted in 1867 by John C. Dalton to show that experiments in vivisection "formed a large part of the discovery."[9] But the operative process was ligation, and according to Sir William Fergusson, testifying in 1875 before the First Royal Commission on Vivisection, this had not been tried out on animals. Said Fergusson: "John Hunter, who was one of our greatest physiologists, and may be said to this day to stand at the head of what is called scientific surgery in this country, is specially celebrated for an operation which he devised on the arteries. That operation for sixty or eighty years stood as one of the most brilliant in surgery; and in so far as I have been able to make out (and I have enquired into the subject), Hunter's first experiment, if it might be so called, was done on the human subject, and it was long after he had repeated his operation on the human subject, and others had repeated it, that the fashion of tying arteries on the lower animals originated, or was developed." (1024, p. 49).[10] Owen's recollection of the anecdote about the stag could hardly have come more aptly; the timing was, so to speak, providential. The agitation which led to the Vivisection Act of 1876, and the continuing furor over the alleged insufficiency of the Act, routed out the story in all its details. Sir William Fergusson, and any others who might wish to make use of Hunter's name in the same way, were given an answer.

Further light is thrown on the subject by the letter from Dr. Irvine to Professor Hamilton, first printed in 1928. Immediately after visiting Hunter, Irvine wrote as follows, in a letter dated 17 June, 1771, more

extremities." The early date of this "extravagant proposition" should be noted. The case in question, which Bromfield mentions in the next sentence, would seem to have proved little for either side, since it is clear from Hunter's account of it that the patient died of infection.

[8] G. J. Guthrie, *On the Diseases and Injuries of Arteries*, London, 1830, pp. 148 ff.

[9] John C. Dalton, *Vivisection: What It Is, And What It Has Accomplished*, New York, 1867, pp. 32-33.

[10] Quoted by E. Westacott, *A Century of Vivisection and Anti-Vivisection*, The C. W. Daniel Co., Ltd., Ashingdon, Rochford, Essex, England, 1949, pp. 44-45. It is interesting to find this statement still surviving in the modern anti-vivisection literature.

than fourteen years before Hunter performed the first "Hunterian" operation for aneurism: "He has made several curious experiments on the blood, from which it appears to have something of a vital principle in it, so that all parts where it stagnates become vascular, which they do not otherwise do. [There follows an account of new blood vessels forming, after several months, in the clot found in a vein between two ligatures; this is said not to occur when the vein is emptied of blood before being tied.] Mr. Hunter has dissected many subjects upon whom the operation for aneurism had been performed. No vessels were ever found in the artery betwen the ligatures, though the lateral branches were greatly enlarged. From this [i. e. the organization of the clot in the ligatured vein] he accounts for the formation of Callous in a broken bone. A quantity of blood, thrown out on the two surfaces, becomes vascular. . . ." [11]

Hunter had thus observed, at least fourteen years before the stag experiment, that when the main artery was tied "the lateral vessels were greatly enlarged." As already suggested, the stag can only have taught him how quickly collaterals discharge their new task. Whatever he learned about collateral circulation from the stag, it was apparently a by-product of a study of bone formation; in Irvine's letter a similar theme appears. But behind all this, and extending back to his first observations on the "vital principle" in blood, some thirty years before the episode of the stag, lies Hunter's long-continued search for evidence to support Hunterian vitalism. If this was not always in his mind initially, his findings were at any rate made use of in this way, again and ever again.

During the last year of his life, Hunter scribbled the following hasty letter to his old friend and pupil, Edward Jenner. Hitherto unpublished, the letter is now in the Wellcome Historical Medical Library.

"Dear Sir

"I shall only write to you at present what relates to your Patient [·] There can be no doubt of an aneurism or rather a wounded artery. You must not trust to nature, but tie the artery and the best way is my operation as it is call'd. Cut through or into the tumor longitudinaly scoop out the Blood and search for the cut artery and tie it above and below.

Yours &c

John Hunter" [12]

[11] *Lancet*, 18 Feb., 1928, p. 354.

[12] For permission to use this letter I am indebted to Dr. E. Ashworth Underwood. I

Two things about this letter at once strike us as strange: the salutation, "Dear Sir," instead of his usual "Dear Jenner," and the fact that the operation described is *not* the Hunterian operation, but rather the orthodox procedure, as old as Antyllus. After the third sentence a query is inserted in pencil (in Jenner's hand?): "What does he mean?" A so-called "false" aneurism such as this, resulting from a wounded artery, Hunter in his lectures had declined to recognize as an aneurism at all.[13] Since the artery would not be diseased, he would see no reason for tying it "up higher in the sound parts." As to why the classical method should be "my operation as it is call'd," I can only echo the query "What does he mean?" Pott having insisted on amputation as the only cure, while Bromfield had been inclined to oppose all interference (*except* in the case of a wounded vessel) had Hunter come to think of any ligation as a specialty of his own? In January, 1793, nearing the end of his tether, he was already engaged in those disputes at St. George's Hospital which finally cost him his life. Together with his usual preoccupations and his chronic tendency to overwork, there was now the increasing pressure of War Office duties. In a letter from John Hunter to Edward Jenner which begins "Dear Sir," and which had to be returned to the writer for re-direction, one should hardly be surprised by some degree of inconsistency or incoherence.

One final point. On at least three occasions the statement has appeared in print that Hunter described his operation for popliteal aneurism before the Physical Society of Guy's Hospital.[14] I believe this assertion to be erroneous, for a page-by-page examination of the minute-book of the

should also like to express my thanks to Mr. W. J. Bishop and Mr. F. N. L. Poynter of the Wellcome Historical Medical Library. The cover reads:

"To
Mr Ed Jenner
Surgeon
Barkley"

To this has been added in another hand: "Returned to Dr. Jno Hunter London — for a better Direction." The cover bears two postmarks, alike but for date, "19 Jan 93" and "22 Jan 93." The letter is in Hunter's handwriting, with the pencilled date, "Jan 19 1793" in the upper right hand corner, possibly added by Jenner.

[13] *Works*, I, 543.

[14] Sir William Hale-White, "The Physical Society: Being the Inaugural Address delivered before the Society, November 6th., 1919," *Guy's Hospital Gazette*, n. s. *33* (1919) p. 383. This statement is repeated in Hale-White's contribution to *British Medical Societies*, ed. by Sir D'Arcy Power, London, 1939, p. 23. *Cf.* also J. M. H. Campbell, "The History of the Physical Society," *Guy's Hospital Gazette*, n. s. *39* (1925) p. 111.

Society from 1785 to 1793 has revealed no record of his presence at a meeting nor of any direct communication from him. The operation was several times discussed at the meetings, particularly by Coleman, Babington and Cline, but Hunter himself seems never to have attended.[15]

[15] I was led to question this story by the well-known circumstance that Everard Home communicated "An Account of Mr. Hunter's Method . . ." to the Society for the Improvement of Medical and Chirurgical Knowledge, "as Mr. Hunter is too much engaged to permit his taking that task upon himself," although a member of the latter Society and not of Guy's Physical. *Cf. Works,* III, p. 594. The minutes of the "Improvement" Society, listed among the holdings of the Library of the Royal Society of Medicine, cannot now be located. The Lyceum Medicum Londinense, established by Hunter, was absorbed by the Westminster Medical Society in 1809, and the latter, in turn, was merged in the Medical Society of London in 1850. The Medical Society of London thus obtained the minute-books of the Lyceum. *Cf.* Warren R. Dawson, *Manuscripta Medica: A Descriptive Catalogue of the Manuscripts in the Library of the Medical Society of London,* London, 1932, 140a-d, pp. 135-137. Since the publication of Dawson's catalogue these minute-books have disappeared.

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MEDICO-HISTORICAL NEWS AND ACTIVITIES

CORRESPONDENCE AND REPORTS

THE HISTORY OF MEDICINE IN SWITZERLAND

HENRY E. SIGERIST

Switzerland is a small country with its 4.5 million population but it has seven universities two of which, however, have no medical school (Fribourg and Neuchatel). Medical history is cultivated in four universities. Center of instruction and research at the moment is the University of Zurich where a full-time chair and an Institute of the History of Medicine and Biology were created in the spring of 1951. The Institute includes an outstanding medico-historical collection, result of thirty-five years of enthusiastic collecting by Dr. Gustav Adolf Wehrli who died a few years ago after having taught medical history at the University for nearly thirty years. The new chair was offered to Dr. Bernhard Milt, formerly Privatdozent of the history of medicine and now the first and only full-time professor of the subject in the country. Dr. Milt recently wrote the history of Zurich's main hospital as part of a two-volume book published by the government on the occasion of the reconstruction of Zurich's *Kantonsspital* which serves as state general and university hospital.[1] He also has several monographs in the press on the Zurich humanist Conrad Gessner, the St. Gall humanist Vadianus, and on the history of Mesmerism in Switzerland.

At the University of Basle Dr. Heinrich Buess is teaching the subject very successfully. He is Privatdozent with what is called here a *Lehrauftrag* which means that he has a salaried appointment to give a course. This is usually the first step to a professorship and there can be no doubt that Basle which has the oldest university of the country will create a chair sooner or later. Dr. Buess has many students writing their theses under his direction. Among them one of the most gifted is Dr. N. Mani who, we all hope, will make medical history his career after having written a brilliant dissertation on the history of the physiology of the liver which is not yet published. Dr. Buess plans to spend the winter of 1951-52 in the United States working with Dr. Shryock at the Johns Hopkins University and with Dr. Fulton at Yale University. Basle also has an honorary lecturer of medical history in Dr. J. Karcher who gave courses for many years and recently published an excellent biography of Felix Platter.[2] In this connection I may also mention another very good book which came from Basle not long ago, *Geschichte des anatomischen Unterrichtes an der Universität Basel, 1460-1900*, by Dr. Werner Kolb.[3]

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[1] *Zürcher Spitalgeschichte*, herausgegeben vom Regierungsrat des Kantons Zürich. Zurich, 1951.

[2] J. Karcher, *Felix Platter. Lebensbild des Basler Stadtarztes, 1536-1614*. Basle: Helbing & Lichtenhahn, 1949.

[3] Basle: Benno Schwabe, 1950.

At the University of Lausanne Dr. Edgar Goldschmid, formerly of Frankfurt a. M., is professor of the history of medicine. His, however, is a personal chair which is not salaried. He gives regularly courses and seminars and at the moment is investigating a very fascinating subject, the art of making waxworks and the part it played in medicine. At the University of Berne Dr. R. von Fellenberg taught medical history as Privatdozent until his retirement a few years ago. The University is just revising its constitution and as it strongly feels the need of emphasizing philosophy and the humanities in all faculties, there is much interest in medical history. Until provisions are made for regular instruction the professor of anatomy, Dr. E. Hintzsche, is cultivating the subject, giving occasional lectures, advising medical students who write historical theses, and editing the *Berner Beiträge zur Geschichte der Medizin und der Naturwissenschaften* of which 11 numbers have been published so far.[4] Dr. Hintzsche also represents Switzerland on the editorial board of *Centaurus* and at the moment he is writing the history of Berne's most famous old hospital, the *Inselspital*.

The Swiss teachers of medical history meet informally twice a year, in the spring and in the fall, to discuss current matters of their discipline. They are joined by the editors of the various periodicals, Dr. Karl Reucker (*Ciba Zeitschrift* and other Ciba historical publications), Dr. E. Hintzsche (*Berner Beiträge*), and Dr. Hans Fischer, professor of pharmacology at the University of Zurich, who very ably edits the publications of the Swiss Society of the History of Medicine and Science, its quarterly, *Gesnerus*, of which vol. VIII is in the course of publication, and its series of monographs, *Veröffentlichungen der Schweizerischen Gesellschaft für Geschichte der Medizin und der Naturwissenschaften* of which 19 volumes have come out so far.[5] A few invited guests usually attend these meetings but the tendency is to keep them small and very informal.

The tradition has developed to hold the spring meeting at Pura and to have papers presented. An hour is set aside for every paper and its discussion so that there is no rush and problems may be debated thoroughly. The spring conference of 1951 was held 10-11 March. The following papers were read in the course of three sessions:

E. Hintzsche (Berne): Medizinischer Unterricht im alten Bern.
N. Mani (Basle): Über die Merycologie des Johann Conrad Peyer.
C. Salzmann (Zurich): Tessinische Hospitalgeschichte.
E. Goldschmid (Lausanne): Wachsbildnerei, mit photographischen Demonstrationen.
H. E. Sigerist (Pura): Alkmaion von Kroton.
C. Lichtenthaeler (Leysin): Ein Problem der hippokratischen Heilkunde.
B. Milt (Zurich): Historische Entwicklung schweizerischer Krankenfürsorge, resp. Krankenversicherung.

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[4] The latest was: Erich Hintzsche, *Ueber medizinischen Unterricht im alten Bern*. Berne: Paul Haupt, 1951.

[5] The latest was: Sigmund Bornhauser, *Die Geschichte der Schilddrüsen- und Kropfforschung im 19. Jahrhundert* (unter besonderer Berücksichtigung der Schweiz). Aarau: H. R. Sauerländer, 1951.

A fourth session was devoted to a lively discussion on the teaching of medical history; and a standing feature of these conferences is what we call a *tour d'horizon* that is, a general survey of medico-historical activities through the world. The Pura conference also provides an opportunity for exhibiting important new publications in our field.

As a rule no papers are read at the autumn meeting so as not to compete with the annual convention of the Swiss Society of the History of Medicine and Science. This year we met in the vicinity of Lucerne on the 29th of September 1951. The morning session was entirely devoted to the general survey. I reported on my visit to Italy in April 1951 and on activities in various other countries. Dr. Milt who had attended the 50th anniversary meeting of the German Society of the History of Medicine, Science, and Technology, held at Trier 31 August to 4 September 1951, reported about that convention as well as about recent developments in Germany. Dr. Goldschmid who represents the Swiss Society on the Permanent Committee of the International Society of the History of Medicine reported about a meeting of that Committee held at Paris 2 June 1951. We had the pleasure to welcome two foreign guests, Dr. E. Ashworth Underwood, Director of the Wellcome Historical Medical Museum in London, who spoke about present activities and future plans of his institution, and Dr. Douglas Guthrie of Edinburgh who gave us an account of his teaching at the University of Edinburgh, of activities of the Scottish Society of the History of Medicine, and who also told us of his recent experience in South America and Africa. An indefatigable traveler, he was on his way home from a study tour in Italy. The afternoon was devoted to a discussion of problems of the Swiss Society.

The *Swiss Society of the History of Medicine and Science* held its annual convention on the following two days, 30 September to 1 October, meeting in Lucerne as a section of the *Schweizerische Naturforschende Gesellschaft*, the Swiss society for the advancement of science. The two main papers were devoted to Hippocratic medicine:

H. E. Sigerist: Die Welt des Hippokrates.
C. Lichtenthaeler: Les dates de la Renaissance médicale (Fin de la tradition hippocratique et galénique).

Other papers presented during the two session were:

H. Joller: Zur Geschichte der antiken Tierheilkunde.
H. Erhard: Die Vorstellung des Hippokrates von Geschlechtsbestimmung.
H. Caprez: Krankenhäuser und Krankenpflege im frühen Mittelalter.
A. Faller: Anatomie und Chirurgie im Spiegel der Initialen von Vesals Fabrica von 1555.
J. Strebel: Neue Beiträge zur Ikonographie des Paracelsus.
E. Walter: Vergleichende soziologische Untersuchungen zur wissenschaftlichen Forschung in der alten Eidgenossenschaft.
P. Jung: Rennward Cysat als Naturforscher, Apotheker und Arzt.
E. Goldschmid: Ueber medizinische Berühmtheiten.
E. Fueter: Geschichte der gesamtschweizerischen Gesellschaft im Ueberblick.

Many members of our Society attended a symposium on "The Position of Biology in the System of Science," organized by the Swiss Society of Logic and Philosophy of Science at which our president, the biologist W. H. Schopfer and a physicist, F. E. Lehmann, were the chief speakers.

The Swiss Society of the History of Medicine and Science was founded just thirty years ago, in 1921. It is the main national organization in the field and has been active without interruption. Mention, however, should also be made of the *Swiss Paracelsus Society,* founded upon the initiative of J. Strebel, of Lucerne, in 1942. It holds annual meetings and publishes the *Nova Acta Paracelsica.* A statue of Paracelsus was erected in the court of honor of the Ambrosiana in Milan on 23 June 1951 next to those of Plato, Thomas Aquinas, Dante, Shakespeare, Goethe, Chateaubriand, and Manzoni. Dr. Strebel gave the inaugural address on the occasion and was awarded an honorary degree.

Switzerland, finally, is proud to have the *Swiss Museum of the History of Pharmacy,* one of the finest and richest collections on the subject, the creation of Professor J. A. Häfliger who today lives in retirement in Lucerne and is President of the International Society of the History of Pharmacy. The Museum is now one of the prized collections of the University of Basle.

ANNOUNCEMENTS

International Society of the History of Medicine

The 13th Congress of the International Society (of which the American Association of the History of Medicine functions as the American and Canadian sections) will be held at Nice, Cannes, and Monaco, September 8-14, 1952. Professor Guiart will preside over the Congress, and Dr. Curel will be its Secretary General. The registration fee is 5000 French francs (3000 for members of the International Society), and 3000 for each accompanying guest. Registration should be made with Prof. F. A. Sondervorst, 124 Avenue des Alliés, Louvain, Belgium. The registration fee should be sent to Mr. Genot, Paris, 4 rue Aubriot, C. Ch. P. Paris no. 2208-69. Information relating to travel and stay in Nice can be obtained from Mr. Jean-Paul Faure, 38 Avenue Auber, Nice.

Leonardo da Vinci Anniversary

The five hundredth anniversary of the birth of Leonardo da Vinci (1452-1519) is being celebrated this year. Dr. Elmer Belt of Los Angeles, whose collection of Leonardo items is famous, will speak at the University of Texas Medical Branch, Galveston, on March 27. (*J.A.M.A.*, March 15, 1952, p. 946.) Dr. Chauncey Leake will give a lecture on April 15 at the Army Medical Library which will also have an exhibit on this occasion. (*Army Medical Library News*, March, 1952.)

Chicago

The ninth D. J. Davis lecture on medical history at the University of Illinois College of Medicine, Chicago, will be given on April 9 by Dr. Erwin H. Ackerknecht, Professor of History of Medicine, University of Wisconsin. The title of his lecture is "Diseases in the Middle West." The lectureship was established in 1943 by the associates and friends of Dr. David J. Davis upon his retirement as Dean of the College of Medicine.

Kansas City, Kansas

Dr. Don Carlos Guffey of the Friends of the Library of the History of Medicine, University of Kansas Medical Center, has offered $100.00 as a prize for the best essay in medical history submitted by a student of the school.

Medical Library Association

The Medical Library Association will hold its fifty-first annual meeting at the Lake Placid Club, Essex County, New York, June 24-27, 1952.

Philadelphia

The Section on Medical History of the College of Physicians announces a meeting for March 27, 1952, with the following program:

Edward H. Hume: "Smallpox prevention centuries before Jenner"
(Discussion opened by Derk Bodde)

Abraham Levinson: "The history of pediatric neurology"
(Discussion opened by Frederick H. Leavitt and John A. Rose)

On April 17, Dr. Chauncey Leake, Vice-President of the University of Texas, will give the Kate Hurd Meade Lecture. His theme will be: "The old Egyptian medical papyri."

Dr. George Sarton, emeritus professor of the history of science at Harvard University, has been appointed the A. S. W. Rosenbach Fellow in Bibliography for 1952 at the University of Pennsylvania. In this capacity he will deliver three lectures on "The Appreciation of Ancient and Medieval Science in the Renaissance." The lectures will be heard October 17, 24 and 31. They will deal successively with medicine, philosophy and mathematics. Their texts will be published. The Rosenbach Fellowship was established in 1929 by Dr. A. S. W. Rosenbach, of Philadelphia, internationally known bibliophile and collector, to bring to the University authoritative lectures on subjects pertaining to books.

NEWS FROM ABROAD

Seventh International Congress for the History of Science

The Seventh International Congress for the History of Science will be held in Jerusalem in the first week of August, 1953, under the auspices of the International Academy and the International Union for the History of Science. In addition to the general meetings, four sections are planned of which one is designated to the history of medicine. All correspondence should be addressed to the President of the Congress, Prof. F. S. Bodenheimer, Hebrew University, Jerusalem, Israel. Papers (not exceeding five printed pages) accompanied by a summary of up to 250 words should reach Prof. Bodenheimer before February 1, 1953.

Turkey

According to a report in the *J.A.M.A.*, vol. 148, February 9, 1952, p. 489, students of the two medical schools (Istanbul and Ankara) have no regular classes on March 14 of each year. Instead, lectures on Turkish medical history are given by the professors. This holiday goes back to Sultan Mahmoud II, the founder, in 1827, of the modern medical school in Istanbul.

BOOK REVIEWS

A. Earl Walker (editor). *A History of Neurological Surgery.* Baltimore: The Williams & Wilkins Co., 1951. xii + 583 pp. Ill. $12.00.

The recent *History of Neurological Surgery,* published by the Williams and Wilkins Company of Baltimore, covers the development of this specialty in an admirable manner. This 583-page volume, edited by Dr. A. Earl Walker, was elaborated from a series of seminars presented by members of his service at the Johns Hopkins Hospital. The volume follows the growth of surgery of the nervous system from the prehistoric cranial trephinations to the present date. It is fascinating to follow the theories built up by the ancient Egyptians, Greeks, and Romans, contrasted with what they actually knew from practical experience about disease and injuries of the nervous system; to trace the faltering footsteps of progress through the Middle Ages; and then, with the advent of the Renaissance, to follow the acquisition of anatomical knowledge from the dissections and teaching of Vesalius, Eustachius, and Willis. The story continues with the dawn of the modern era in the mid-nineteenth century, ushered in by the antiseptic technique of Lister, and the stimulus of physiological investigations which followed the first cortical stimulations of Fritsch and Hitzig. The evolution of to-day's neurosurgical procedures are made clear by reproductions of original illustrations and quotations from the papers of the pioneers in many different countries: Godlee, Macewen, and Horsley in Britain; von Bergmann, Krause, Kocher, and Foerster in Germany; de Martel and Vincent in France; together with those of Cushing, Frazier, Dandy, and a host of others in this country.

The book describes the chronological acquisition of knowledge in many different fields: neurosurgical technique, the surgical treatment of brain tumours, the hypophysis, craniocerebral trauma and infection, congenital and vascular anomalies, the spinal cord and peripheral nerves, and the autonomic nervous system. Other chapters are devoted to epilepsy, motor disorders, pain, and psychosurgery. With each chapter there is a brief biographical sketch of the pioneer neurosurgeon whose name is most closely associated with the development of the subject under discussion.

It is difficult to find anything to criticize. Perhaps a bit more emphasis could have been placed on neurophysiology and the understanding of higher cortical functions derived from electrical stimulation and recording in conscious patients; also the reviewer is left with the impression that the status of present-day surgery of the autonomic system and the control of pain (particularly of visceral origin) are not as clearly evaluated as the other topics. These are, however, very minor objections. This new historical monograph is therefore a most valuable book, not only for the specialist in neurological surgery, but for everyone interested in neurology and related subjects. It is clearly and interestingly written, beautifully illustrated, and so well documented with an alphabetically arranged index of 2371 references that it can be used as a source for starting a bibliography on almost any neurosurgical subject.

James C. White

JEREMIAH S. FINCH. *Sir Thomas Browne. A Doctor's Life of Science and Faith.* New York: Henry Schuman, 1950. viii + 319 pp. Ill. $3.50.

After an introductory chapter on *Religio Medici*, with the usual appeal to Sir William Osler, Dr. Finch proceeds chronologically with alternations of biography and criticism. He has done a thorough and discriminating job in all that relates directly to Browne's career. If the background is sketchy and the account of seventeenth-century culture rather superficial and conventional, this inadequacy is only apparent at the points where Browne, who after all was remarkable for individuality, is most deeply implicated in the thought of his age. Yet it is disappointing to find, in a full-scale study, no single passage which deals with the history of ideas in so stimulating a fashion as Dr. Frank Livingstone Huntley's recent paper on Sir Thomas Browne and William Harvey.[1] Nor can I escape the conclusion that the principal theme of the book, which is to justify its inclusion in the "Life of Science Library," is partly vitiated by this failure to penetrate beneath the surface of contemporary intellectual life.

Several students of Sir Thomas Browne, notably Gordon K. Chalmers in a paper published in *Osiris* in 1936, have claimed for him the status of "true scientist." Dr. Finch reviews the case point by point. Unfortunately many of the points are never driven home. For example, Professor Joseph Needham is cited in praise of Browne's pioneer work in chemical embryology; but what this work was we are never told. On the other hand I am impressed by the claim that Browne's *Vulgar Errors* is a more serious, more important work, in the context of its time, than it has appeared to most readers of a later age. Even here, however, there is a matter of central interest which is quite neglected. One need hardly go farther than the table of contents of the first book of *Pseudodoxia Epidemica* to form the offhand impression that Browne was greatly influenced by Francis Bacon. This impression is confirmed by every page that follows, stamped though they are with Browne's distinctive personality. The Baconian element in Browne's work is convincingly demonstrated in the present biography. What then? Having shown that Browne was a Baconian, Dr. Finch is seemingly content that he has also shown him to be a scientist. The Baconian method is assumed to be a simple equivalent for "science." Whether or not this is true, or half true, has been much debated. C. D. Broad, the Cambridge philosopher, has dismissed as negligible Bacon's influence on the course of science. The late Professor Morris Cohen wrote in a similar vein of the "Baconian myth." Although efforts have been made to restore Bacon to something like his old position in the history of science, it is probably safe to say that scholarly opinion generally inclines in the opposite direction. This is not a problem which should occupy much space in a book on Browne; at the same time it is disconcerting, under the circumstances, to find it totally ignored and the school-book picture of Francis Bacon printed once again without retouching.

"Bacon seems to have had little or no influence," writes Sir William Dampier, "on those who were carrying on experimental science, except, perhaps, later on Robert Boyle. Nevertheless, he did something to improve instructed thought about the scientific problems of his day." The second sentence can also be applied to

[1] See this *Bulletin*, 1951, vol. 25, pp. 236-247.

Browne, who appealed to a very wide audience. That in certain points he surpassed his master and was able, in practice, to take a step which brought him closer to his scientific contemporaries, may well be true; but I doubt if the critical reader will be entirely convinced of this by a perusal of Dr. Finch's brief. In this respect his client is served indifferently well. Browne's rôle as philosopher-theologian is perhaps depicted more satisfactorily, but with the same limitations in depth and scope.

Scientist or not, Browne holds a distinguished place in the history of English literature. Only those who are devoted to telegraphic English, and who look askance at the prose of the King James Bible, have questioned his eminence as a prose poet who has hardly a peer. Even yet he is more at home among "English Men of Letters" than in the present series. As literary critic I find Dr. Finch a more persuasive guide than as historian of science. I should also like to repeat that as a scholarly biography, his book is admirably thorough and lucid. Cool scholarship is only too likely to destroy the drama of more exciting careers; but Sir Thomas Browne, poet, theologian, and naturalist, absorbed by matters of everyday observation and by quietist reflections on life and death, is safe from this danger. A calm, discursive treatment suits him well. His gentle, humorous, faintly somber character, is presented to us here with considerable skill, in his habit as he lived.

LLOYD G. STEVENSON

LOUIS JACOBSON. *Ouvrages sur l'organe voméro-nasal.* Avec préface et notes par O. C. Hollnagel-Jansen et Erik Andreasen. Copenhagen: Einar Munksgaard, 1950. xxix + 175 pp. Ill. Dan. kr. 30.

The vomero-nasal organs are small pouches on either side of the base of the nasal septum. Lined with epithelium and supplied by branches of the olfactory nerves, they evidently play a supplementary part in the sense of smell among the great many mammals in which these structures are well developed. In man these organs are rudimentary. They are commonly called Jacobson's organs after their discoverer, Louis Jacobson, who is also credited with the first description of the tympanic branch of the glosso-pharyngeal nerve. This gifted Danish physician and scientist, born in 1783, wrote three different treatises on the vomero-nasal organs in mammals, of which only one had been printed. The original manuscripts of the other two papers, which had been read in 1811 and 1812 respectively, have recently been found, carefully edited and published in French in the volume under review. The first of these rediscovered reports bears the title "Description anatomique d'un organe de sécrétion dans le nez inconnu jusqu'ici." Even the original manuscript of "Ludevig Jacobson, Candidatus Chirurgiae" is reproduced page by page on 57 plates. The other paper is entitled simply: "Description anatomique d'un organe observé dans les mammifères." Its full publication here is accompanied by a reprinted report by M. Cuvier to the *Institut de France* on this same study of Jacobson. Finally, there is appended to this monograph a series of 26 sketches by Jacobson of dissected mammalian heads, showing details of the vomero-nasal organs.

This beautifully printed, expensive monograph amply proves that Jacobson was

the discoverer of Jacobson's organ and shows that he had studied this organ in at least 14 different types of animals, but it reveals nothing else of significance. Only 300 copies of this publication have been issued and this seems ample.

A. H. SCHULTZ

FRANK G. SLAUGHTER. *Immortal Magyar.* Semmelweis, Conqueror of Childbed Fever. New York: Henry Schuman, 1950. 211 pp. Ill. $3.50.

The most dramatic chapter in medical history is the one concerning the conquering of childbed fever in the middle of the 19th century. It has all the elements of a great drama; a disease that killed 10 percent of women having babies (a normal physiological function) in the greatest hospital in Europe; a political appointee, who sets up unwittingly a mass controlled experiment and then fails to see the significance of the results obtained; an assistant who sees the significance and conquers the disease and who, instead of being commended for the exploit, gains the enmity of the professor. The world practically ignores his great discovery, and the discoverer dies in an insane asylum of a wound received at the autopsy table, which was just the event that gave him the clue for his discovery in the first place.

At the time the story opens one half the births in Vienna were illegitimate. The Empress of Austria built a great maternity hospital and established elaborate precautions for the comfort and safety of the babies and these unfortunate mothers, and for safeguarding their identity. The first professor of obstetrics, Boër, was trained in France and England and introduced the soap and water cleanliness that pertained in Dublin and the London hospitals. His mortality was 1.3 percent. He was removed by the minister of education because his teaching was considered out of date. For instance, he refused to use a cadaver instead of a manikin for teaching obstetric operations to the students. Professor Klein was appointed in his place. Klein's maternal mortality immediately rose to 7.8 percent. Klein separated the medical students from the midwives, giving the first clinic to the medical students and the second clinic to the midwives. The care and treatment of the patients in the two divisions were otherwise the same. It soon became evident that the mortality in clinic No. I was ten times that of clinic No. II. Thus accidentally Klein set up a well controlled experiment, but he did not have the wit to benefit by it. His assistant, Semmelweis, puzzled over the situation, trying to fit in every known theory of the cause of puerperal fever into an explanation.

The story of how he received his first clue is a familiar one. While Semmelweis was on his vacation in Venice, his friend, Kolletschka, died from a wound received at the autopsy table. Rokitansky's report of the autopsy reminded Semmelweis of what he had been finding in the bodies of the mothers dying of childbed fever. It then occurred to him that he and the students had been in the habit of going directly from the dead house to the clinic, and examining the patients in labor. He immediately ordered that everyone should scrub his hands in clorine water until they lost the odor of the cadaver, before they were allowed to make a vaginal examination. The problem was solved until there was admitted to clinic No. I a patient with a cancerous ulcer of the cervix. There was then another outbreak

of puerperal fever, and Semmelweis revised his theory of the etioloy to include not only the cadaveric particles but decaying matter from living tissues as well. This, be it remembered, was before germs had been discovered. In spite of Semmelweis's results, he was ridiculed by the professor and finally lost his job. He left Vienna without telling any of his friends goodbye and went back to his native Budapest. Here he established a gynecological and obstetrical practice, married, and started a family. When he was appointed a professor at the University of Pest, he conquered childbed fever as he had done previously at Vienna. He also wrote his great work *Die Aetiologie*. However, he began to act so peculiarly that his family had to commit him to an insane asylum. He died of pyemia shortly after his admission. Whether his wound was accidental or self-inflicted is not clear.

Dr. Slaughter handles the story in a straightforward, factual manner. He does not attempt to settle the question of whether Semmelweis was crazy while in Vienna or whether his persecutions were real or imaginary, he merely describes his conduct. He goes more fully into Semmelweis' life in Budapest than the usual biographies available in English. Since most of his source material is from Semmelweis' epoch-making book, *Die Actiology, der Begriff und die Prophylaxis des Kindbettfiebers*, there is a natural bias in favor of Semmelweis. Murphy, who translated the work into English, describes it as wordy and repetitious and says that if Semmelweis had spent more time in stating clearly his views and less in argument, his book would be twice as good and half as long .

Both in Vienna and in Budapest, Semmelweis had to contend with political medicine. In Vienna he had to work under a politically appointed doctor who was more interested in order and regimentation than he was in scientific investigation. In Budapest his patients had to be put to bed on sheets reeking with discharges of the former occupant because the laundry brought back sheets without taking the trouble to wash them. Perhaps it was necessary to be a madman to succeed under such conditions.

This is the 15th of the Life of Science series, and like the others of this series it has an attractive format. It is easy to read and is well illustrated and has a good index.

M. Pierce Rucker

Edward H. Hume. *Doctors Courageous*. New York: Harper & Brothers, 1950. xiv + 297 pp. Ill. $3.50.

In his foreword to *Doctors Courageous*, Dr. Alan Gregg states: "Claiming Christ as their Master, men have done diverse things to those whom they have chosen to call heathen. They have slaughtered and they have cured in the name of the Lord. They have governed and they have exploited. They have embittered many and they have converted many." Dr. Hume's study of missionary physicians concerns itself with those who have cured in the name of the Lord.

Almost everyone is familiar with the names of David Livingstone and Albert Schweitzer. But how many know more about the first of these than the now classic phrase "Dr. Livingstone, I presume?" and perhaps the story of his dramatic rescue by Stanley? As for Dr. Schweitzer—it must be admitted that he

was little known to the layman in this country before 1949, when the press called general attention to his visit. By these historical accidents, which were merely incidental to lifetimes of altruistic toil and hardship, the names of these two missionary physicians have been held up to the acclaim of the public. And yet these men are just two from among that legion of no less deserving doctors who in almost complete obscurity bring to the outlying regions of the world—often with great self-sacrifice—health, hope, and a longer life; and through them the teachings of Christianity.

Doctors Courageous is designed to lift the veil of that obscurity, to describe the lives of these men and women, their frequent heroism, their selfless devotion to their task. Although Dr. Hume brings out the highlights in the career of each doctor, he has avoided the pitfall of making his work a list of biographies, which might have been monotonous; instead he is concerned with attaining a much more universal view. He succeeds in giving a picture of the general growth of Western medicine in Africa, India and Pakistan, the Near and Middle East, and China, due in large part to the efforts of the missionary.

The book breathes a wisdom and a tolerance which Dr. Hume ascribes to the physicians whose lives he chronicles, but which are no less noteworthy on his part. Perhaps because he himself is so much above scorning native medical practices and even strange religious rites, was he able to stress the tolerance of the medical missionaries whom he describes. Not only were the doctors of his book constantly trying to save the face of the respective native peoples by creating "exchange centers" of medicine, rather than by forcing their own science upon unwilling patients, but they enriched their pharmacopeia and often their knowledge of diseases endemic to particular regions by working with rather than against the established medicine-man and old-style physicians.

Tolerance was also practiced by these medical missionaries in the field of spiritual conversion. They were content to limit themselves to the promotion of a more healthful and thus a more valuable life, without urging spiritual change where such change was not acceptable. But since the healing art has often been attributed to deities, the healing missionaries were frequently looked upon as apostles of their god, and successful cures in many instances preceded conversion to Christianity of the patient and his kin.

It would be impossible to treat of "doctors courageous" without occasional touches of pathos. The description of the convoy of sorrowful Africans who took nine months to conduct the remains of Dr. Livingstone over fifteen hundred miles until they could put the body into the hands of the British, with assurance of a safe return to England, is one of the most moving chapters in the history of human relations. But on the whole, the book is conducted in a lighter vein, and is often touched with delightful and unexpected humor.

Hardly anyone but Dr. Hume, would have been able to give this book the rich, personal approach that counts for so much in its presentation. Dr. Hume, the son of missionary parents and himself a "doctor courageous," has a background very similar to that of the physicians he describes; it has given him invaluable insight into the minds and hearts of the surprisingly large number of medical men who have preferred the physical uncertainties and spiritual rewards of missionary life to the safety of an established practice in their own country. Whether he deals

with India and China, which are so familiar to him, or with Africa and the Near East, the book is immensely readable. It is a skilful fabric woven out of the wisdom and experience stored during the decades of his own work in the field, out of his knowledge of the medical history of each people, and out of the wealth of diaries, letters, and biographies of the missionary doctors. *Doctors Courageous* will surely be welcomed by medical historians and laymen alike.

ILZA VEITH

EARL D. BOND (with the collaboration of PAUL O. KOMORA). *Thomas W. Salmon, Psychiatrist.* New York: W. W. Norton & Co., Inc., 1950. 237 pp. Ill. $3.00.

Thomas W. Salmon—Psychiatrist, by Earl D. Bond is of that order of books, more of which should be written. This sentiment (conviction, belief) phrased crabbedly, is intended forthright and earnestly. In this book one distinguished psychiatrist writes of the life of another, his friend and associate. He writes with that patent immediacy which can be achieved only by those articulate spirits who were partakers of the "event." For some ends there is more worth in the vision of the contemporary eye and intelligence than in the keenest portrayal "done from mementos and remains." We thus get to know what manner of man *is* the author, and *was* his subject.

Thomas W. Salmon played a significant, critical, and determining role in the history of American psychiatry. With Clifford Beers, he helped found the National Committee for Mental Hygiene. In the first World War he served as Chief of Army Psychiatry for the A. E. F., and he *insinuated* psychiatry into the tight structure of the medical school curriculum.

Of all this Dr. Bond tells the tale in very readable text. But more precious is the picture of the innate man, and him Bond, the psychiatrist, presents with deft, characterological, strokes. (Vide pp. 46, 88, 89.)

"He [Salmon] radiated cheerfulness and optimism. But happily married, happily joined to his work, there was something underneath that hurt." (p. 47) That something may be the answer to the puzzle of Salmon's most unfortunate end.

Salmon presents the picture of a man well integrated in the nuclear portion of his person but disorganized at the periphery, where unfortunately he made contact with the world. Life was hard for Salmon. Once when Tom was a youngster "his mother led him to the bank of the river . . . and suggested that they both jump in and do away with themselves." Salmon died by drowning! He stood six feet, four inches, but felt physically deficient. He suffered because he was "not a college graduate," and because he was not "trained" in psychiatry. He did have "a genius for understanding and illuminating the feelings of people in trouble."

All that he suffered because of his "wants," real or fancied, and all he achieved because of his genius for understanding people in trouble, form the substance of this book, warmly commended to those interested in the history of American psychiatry, and in learning of the life of a rare and distinguished personage.

IAGO GALDSTON

*THE BULLETIN RECENTLY RECEIVED:**

W. R. Bett. *Osler: The Man and the Legend.* London: William Heinemann, Medical Books, Ltd., 1951. vi + 125 pp. Ill. 15 s.

Solomon R. Kagan. *Jewish Medicine.* Boston, Mass., Medico-Historical Press, 1952. 575 pp. Ill. $10.00.

K. D. Keele. *Leonardo da Vinci on Movement of the Heart and Blood.* Philadelphia: J. B. Lippincott Company, 1952. xviii + 142 pp. Ill. $15.00.

Max Pinner and Benjamin F. Miller (editors). *When Doctors are Patients.* New York: W. W. Norton & Company, Inc., 1952. xix + 364 pp. $3.95.

Carl Roebuck. *The Asklepieion and Lerna.* Volume XIV of *Corinth,* Results of Excavations Conducted by the American School of Classical Studies at Athens. Princeton, N. J., The American School of Classical Studies at Athens, 1951. x + 183 pp. Ill.

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* The *Bulletin* reserves freedom of decision as to the publications to be listed in this section.